AUGUST
1953

Amateur Radio

JOURNAL OF
THE WIRELESS
INSTITUTE OF
AUSTRALIA

For the Experimenter
and Radio Enthusiast

1/-

Registered at G.P.O., Melbourne, for transmission by post as a periodical.

"HAM" RADIO SUPPLIERS

(KEN MILLBOURN, PROP.)

5A Melville Street, Hawthorn, Victoria

North Balwyn Tram Passes Corner, near Vogue Theatre. Phone: WA 6465

Money Orders and Postal Notes payable North Hawthorn P.O. Packing Charge on all goods over 10 lbs. in weight, 5/- extra.

Command Transmitters, new condition. Freq. 4 to 5.3 Mc. Complete with valves and crystal £7/10/-

AT5 Transmitter, complete with valves £8

522 Transmitters, comp. with valves, £12/10/-

AT5 Aerial Tuning Units, A.W.A. Contains two Relays and 0-5 Ma. Meter £2/10/-

Transformers, Power, 500 aside at 150 Ma., 5v. 3a., and two 6.3v. 3a. ..... £3/10/- each

American Radio Control Tuning Dials, contains one 0-5 Ma. Meter, Volume Control, Dial Light, Yaxley Switch and Phone Jack. Postage Free £1/5/-

Genemotor Power Supply, new, SCR522, 24v. input, 150v. and 300v. output at 300 Ma. Includes relay, voltage regulator, etc. A gift at 35/-. Too heavy for postage.

18 VOLT GENEMOTORS, I.F.F. TYPE, WANTED URGENTLY. STATE PRICE.

Magnavox Speaker Transformers, 10,000 and 4,000 ohms. New condition ..... 7/6 each

Single Shielded Hook-up Wire, new, 8d. yard

Hammarlund BC191E Plug-in Coil Units, contains two variable condensers, coil formers, fixed condensers, etc. Complete £2/10/-. Less vernier dial, £2.

American APX2 Remote Control Box contains four panel mount. Fuse Holders, two Bezel Lights, two 50,000 Vol. Controls, six-position Yaxley Switch. Bargain Price 15/-, post. 2/6

Six volt bayonet type Dial Lamps ..... 1/- each

EF50 Sockets, ceramic ..... 2/6 each

Locktal Sockets ..... 1/6 each

Valve Sockets, ceramic, 8-pin Octal 2/6

Valve Sockets, ceramic, 5-pin 2/6

Valve Sockets, ceramic, 4-pin 2/6

Butterfly Condensers, 4-plate, cad. plated, 4/6

Solor 28 pF. silver plated wide-spaced Condensers ..... 9/6 each

Co-ax Connectors, male/female, small Pi type, new ..... 2/6 pair

Meters—0-1 Ma., square type, new 27/6

Meters—0-5 Ma., square type, new 27/6

Meters—0-5 Ma., 2" round, scale 0-15, 0-250 Ma., A.W.A. AT5 type 25/-

Meters—0-40, 0-120 Ma., separate connection, new 27/6

Meters—0-100 Ma., 2 inch mounting, new, 32/6

Meters—0-150 Ma., square type, new 27/6

Meters—0-150 Ma., round type, new 27/6

NEW VALVES

6SG7	12/6		
12K8	10/-		
35T Eimac	50/-		
211	30/-		
834, R.C.A.	£1		
954 American	12/6		
955 American	12/6		
EF50	12/6		

TESTED VALVES EX DISPOSALS GEAR

1A3	10/-	6SS7	10/-
1A5	10/-	6U5	7/6
1G4	7/6	6U7	10/-
1K5	7/6	6V6	10/-
1K7	7/6	6X5	10/-
1L4	10/-	6Y6	10/-
1R5	10/-	7A6	10/-
1S5	10/-	7A8	10/-
2A3	10/-	7C5	10/-
2X2	10/-	7C7	10/-
3A4	10/-	7F7	10/-
3Q5	10/-	7G7	10/-
5R4GY	20/-	7N7	10/-
5U4	12/6	7W7	10/-
5Y3	10/-	7Y4	10/-
6A3	10/-	12A6	10/-
6A8	10/-	12AH7	10/-
6AC7	10/-	12C8	10/-
6AG5	15/-	12J5	10/-
6AG7	15/-	12SG7	10/-
6B4	10/-	12SK7	10/-
6BE6	15/-	12SQ7	10/-
6C4	12/6	12SR7	10/-
6C5	10/-	83	12/6
6C6	7/6	807	10/-
6C8	10/-	809	50/-
6F5	10/-	813	60/-
6F6	10/-	832	50/-
6F8	10/-	866	20/-
6G6	10/-	956	10/-
6G6G	10/-	1603	10/-
6H6	5/-	1626	10/-
6J5GT	10/-	1629	10/-
6J6	15/-	2051	10/-
6K6	10/-	7193	5/-
6K7G	7/6	9002	10/-
6L6G	10/-	9003	10/-
6L7	10/-	9004	10/-
6N7	10/-	EF50	7/6
6N8	15/-	OA4	10/-
6R7	10/-	TZ20	40/-
6SH7	5/-	VR105	15/-
6SH7GT	4/-	VR150	15/-
6SL7	15/-	VR65A	2/6
6SN7	15/-		

PLEASE NOTE OUR NEW PHONE NUMBER

WA 6465

Command Receivers, 3 to 6 Mc., and 6 to 9 Mc. As new, less genemotor; air tested, £7/10/-

AR8 Receivers, condition as new, complete with valves £18

AR8 Connecting Cables, 8-pin sockets, 5/- ea.

522 Receivers, original cond. with valves, £9

Bendix Radio Compass Receiver, converted to 230v. A.C. with power supply. Band coverage: 150-1500 Kc. with 112 Kc. I.F. channel £16/10/-

R1155A English Com. Receiver, nine valves, five bands, freq. range: 75 Kc.-18 Mc., original condition, less power supply, £29/10/-

Bendix Radio Receiver RA10FA, four bands: 150-500 Kc., 2.5-5 Mc., 2.5-5 Mc., 3-10 Mc. Complete with A.C. power supply, less dial and speaker £17/10/-

AR301 High Freq. Receiver, uses three 954s, one 955, six 6AC7 I.F. stages at 30 Mc. Easily converted to 144 Mc. Complete, as new, £9

G.E.C. American Receiver, six valves, four switched bands 200-1,500 Kc. Tube line-up: 12SK7 1st RF, 12K8 Mixer, two stages I.F. at 160 Kc. using 12SK7 I.F. amps., 12SR7 1st Det. and B.F.O. into 12A6 output valve. 24v. genemotor; ideal for Q5'er, £17/10/-

ASD 18 valve Indicator Units, less valves, good for wrecking; too heavy for post., 50/-

English Control Boxes type BW228, 6½" x 4" x 2½", contains three Volume Controls and Knobs, Jones Plug, etc. To clear 5/- each, postage 3/-.

Bendix Loop Antenna, 8 inch diameter, enclosed gear box. Condition new. Postage Free ..... 10/- each

LARGE STOCK OF CRYSTALS

1,000 Kc. Crystal mounted in case with 10-pin valve socket and 4-pin Continental power plug 35/-

Marker Crystals, 3.5 Mc., 5 Mc., and 10 Mc. Crystals ground to any frequency. Complete with holder £2

Following is a list of Crystal Frequencies available for immediate delivery, £2 each—

2258 Kc.	7004 Kc.	7044 Kc.	8021.5 Kc.
2282 Kc.	7006.2 Kc.	7047 Kc.	8025 Kc.
3500 Kc.	7008.5 Kc.	7050 Kc.	8035 Kc.
3506 Kc.	7012 Kc.	7054 Kc.	8090 Kc.
3509.1 Kc.	7015 Kc.	7058 Kc.	8126 Kc.
3511.2 Kc.	7016 Kc.	7058.5 Kc.	8150 Kc.
3573 Kc.	7020 Kc.	7062 Kc.	8155.71 Kc.
3695 Kc.	7021.5 Kc.	7063 Kc.	8161.538 Kc.
5460 Kc.	7032 Kc.	7110 Kc.	8171.25 Kc.
5780 Kc.	7033 Kc.	7129 Kc.	8177 Kc.
6000 Kc.	7039 Kc.	7175 Kc.	8182.5 Kc.
6235 Kc.	7041 Kc.	7200 Kc.	8183.5 Kc.
7000 Kc.			8318.18 Kc.

WANTED TO BUY—RADIO PARTS, VALVES, TRANSFORMERS, RECEIVERS, TRANSMITTERS, ETC.

AUGUST — — — 1953
Vol. 21 No. 8

EDITOR:
T. D. HOGAN, VK3HX,
Telephone: UM 1732.

MANAGING EDITOR:
J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:
J. C. DUNCAN, VK3VZ.

TECHNICAL STAFF:
L. B. FISHER, VK3AFF.

COMPILATION:
R. W. HIGGINBOTHAM, VK3RN.

CIRCULATION:
I. K. SEWELL, VK3IK.

ADVERTISING REPRESENTATIVE:
BEATRICE TOUZEAU,
96 Collins St., Melbourne, C.1.
Telephones: Cent. 3411, MB 2111.

PRINTERS:
"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.1.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," Law Court Chambers, 191 Queen St., Melbourne, C.1, on or before the 8th of each month.

Subscription rate in Australia is 12/- per annum, in advance (post paid) and A15/- in all other countries.

Wireless Institute of Australia (Victorian Division) Rooms' Phone Number is FJ 6997.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc. and 2000 hours EST 50 and 144 Mc. No frequency checks available from VK2WI. Intrastate working frequency, 7125 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 51.016 and 146.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5DW by arrangements only on the 7 and 14 Mc. bands.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc. and 146.5 Mc. No frequency checks are available.

AMATEUR RADIO

Published by the Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.1.

EDITORIAL

★

AMATEUR ADVISORY COMMITTEES

In the same way that regulations for driving motor vehicles, flying aircraft, filing income tax returns and the like have of necessity to be "policed," the regulations under which Amateurs operate have also to be supervised to insure that the licensees abide by the terms of their license. It seems inherent in human nature in every country in all walks of life wherever people congregate as a community to carry on the daily task of living, that some form of superintendence of the community laws and regulations is necessary.

Before World War II. a committee of Departmental Officers and Amateurs in each Capital City, known as a **Vigilance Committee**, was set up to maintain some form of discipline in the operating of Amateur transmitting stations. Up to a point these Committees were satisfactory, but left much to be desired insofar as the Institute was concerned because they savoured somewhat of a little "gestapo," or, if not that, something bordering on a system which left itself open to severe criticism although doubtless well-being was generally intended towards those who fell within its clutches.

After the cessation of hostilities when Amateurs were again licensed, the Institute gained representation on a similar committee set up in each State of the Commonwealth to become known as the **Amateur Advisory Committee**—the name currently given to it today.

The Amateur Advisory Committee in each State is composed of Officers of the Wireless Branches of the Postmaster-General's Department, preferably three transmitting members of the Wireless Institute of Australia and three licensed Amateurs to represent the non-Institute Amateurs. Where the full compliment cannot be obtained, the numbers can be juggled to suit the Chairman of each Committee, the Chairman being an Officer of the Department. In addition to these members, the Department can at its discretion appoint observers in country areas.

The Committees meet regularly and discuss the conduct of Amateur affairs and generally control the activities of those who have that human tendency to stray off the path of good operating and commit breaches of the Regulations. In between the meetings of the Committees the members and observers spend many hours monitoring the bands, warning and advising any Amateur who errs rather than report him to the Chairman. In this way petty "law breakers" are given the opportunity to correct their equipment faults, operating irregularities, or what-have-you without meeting with Departmental pro forma's which result in a blot on the copy-book of the licensee.

The Amateur Advisory Committee system has been operating since the war, but it has been gradually gaining a reputation for being a sort of "secret police organisation" because its members have been shrouded in mystery and never known to the Amateur fraternity. Elsewhere in this issue of "Amateur Radio" you will find a list of the names of the Amateurs who comprise the mem-

(Continued on Page 10)

THE CONTENTS . . .

NOTES ON V.H.F. CONVERTER DESIGN*

Some Practical Hints for Improving the Performance of Crystal Controlled Converters

• We have had numerous requests to re-print the following article from "QST" on V.h.f. Converter Design, and as this type of v.h.f. reception is used by most Hams, here it is.

Crystal Controlled Converters are becoming more popular among v.h.f. men every day, but unless they are carefully designed their considerable response to signals outside the intended frequency range may make them something less than an unalloyed blessing. Here, the authors describe simple means for reducing spurious responses in v.h.f. converters, while at the same time maintaining uniform high sensitivity across the desired tuning range.

THE basic reason for the use of a converter is to extend the frequency range of a communications receiver to bands where the owner of the receiver wishes to operate. Various forms of v.h.f. converters have been used with Amateur receivers for many years, but only recently have they begun to achieve a high state of perfection.

A major drawback of v.h.f. converters in general has been instability in the local oscillator, resulting from mechanical vibration or long-term thermal effects. In order to circumvent this difficulty, the use of crystal controlled injection sources has come into vogue. The higher the frequency the more difficult it is to design a variable frequency oscillator, so though crystal controlled converters for all Amateur bands have been described, their greatest use has been found on 50 Mc. and higher bands.

The use of crystal control in the converter, though it makes possible a high order of stability, introduces other complications. These revolve around the fact that, with a single injection frequency, the intermediate frequency must be varied to effect a tuning range. The r.f. portion of the converter must thus be broadbanded in some way, so that its gain will be constant across the band for which it is designed, yet it must be made to reject signals on all frequencies outside the desired range insofar as possible.

Some crystal controlled converters that have been described make use of rather inefficient broadbanding methods. An example is the use of single-tuned coupling circuits damped with shunt resistors to broaden their frequency response, as shown at the top of Fig. 1. This is simple circuitwise, but it produces a passband that is far from the ideal. It achieves broad response at the expense of gain, and the passband is such that interference from strong signals outside of the desired frequency range is a problem. On the other hand, we have found that use of several double-tuned overcoupled circuits as shown in the lower portion of Fig. 1, results in an almost ideal flat-topped passband characteristic. High Q coils of proper form factor, oriented for minimum capacitive coupling between stages, make possible this desirable response without an excessive number of circuits. It is obvious that this technique is going to be effective in reducing the amplitude of adjacent frequency signals from strong local stations and interference from the unwanted harmonics of the crystal oscillator or doubler stages in the converter. The tendency to cross-modulation from stations located outside the passband is reduced, and higher gain is obtained at the desired frequencies.

Probably even more annoying than the cross modulation trouble that is found in many crystal controlled converter designs is their spurious response to signals outside the desired frequency range. It is quite common, in tuning the four megacycle range covered by the 2 metre band, for example, to find many interfering signals in addition to the desired Amateur stations. These may be the sound or video carriers of local television stations, taxi cab or other mobile service stations, operating in the frequency range that serves as the intermediate frequency, or unmodulated signals resulting from harmonics of the receiver oscillator. All except those in the last category can be minimised or eliminated completely by employing suitable converter design techniques.

One of the purposes of this article is to describe means of overcoming these weaknesses of crystal controlled converters for 144 Mc. while at the same time achieving a high order of sensitivity and stability. The 2 metre band is used as an example for several reasons, though the same principles may be applied to other frequencies in the v.h.f. range. Reception at 144 Mc. requires multiplication of the crystal oscillator frequency. A converter for this band is quite susceptible to the spurious response troubles mentioned above because of its location in the spectrum between two high powered broadcasting services (f.m. and t.v.) and close to many aircraft and mobile frequencies. In addition, it requires the use of low-noise r.f. amplifier techniques as the frequency is high enough to make receiver noise one of the major limiting factors in weak signal reception.

R.F. AMPLIFIER CIRCUITRY

It is well known that the first r.f. amplifier in a good design controls the sensitivity, or more accurately, the noise figure of the entire system. In the specific design in question it was decided to use one of the new low-noise dual triodes, such as the 6BQ7A, the 6BK7 or 6BZ7. The first r.f. amplifier circuit is the so-called cascode or driven grounded-grid arrangement shown in Fig. 2. This provides high gain, low noise figure, excellent stability, and ease of adjustment.

Many variations of this circuit have been devised, and nearly all show complicated neutralising methods for achieving the lowest possible noise figure. In the case of a circuit to be used only over a narrow band of frequencies (it should be noted that the 2 metre band is actually narrower than a single television channel), fussy neutralising arrangements can be dispensed with, and a single small coil used to advantage. This inductor is connected between the plate of the first triode section and the cathode of the second, and is designed to be resonant with the input capacitance of the grounded-grid section. This dual triode circuit has a noise figure under 4 db above thermal. When it is used with a suitable pentode r.f. amplifier following, the over-all noise figure can be just slightly in excess of 4 db, which is quite good at these frequencies.

Note that a second r.f. amplifier using a pentode (6AK5 or 6CB6) is suggested. If the mixer follows the first r.f. amplifier directly the noise figure will not be as good, and the operating conditions for the mixer become more critical. The intermediate r.f. amplifier also permits the use of more tuned circuits at the signal frequency and hence improves the rejection of adjacent signals and those on the intermediate frequency. In this respect, the additional pentode r.f. stage is superior to the use of an i.f. amplifier stage in the converter as a means of building up the gain. The latter tends to increase difficulties with signal pick-up at the intermediate frequency, whereas the second pentode stage is effective in reducing it. If control of the over-all converter gain is desirable, it can be accomplished by means of a cathode-bias gain control in the pentode stage in the same manner as is commonly used in i.f. amplifier stages.

Double-tuned circuits are used between the triode and pentode amplifiers, and between the pentode amplifier and the mixer. This is a very important feature, making possible the highly desirable over-all response shown in the lower portion of Fig. 1. The coupling circuits can best be aligned by the use of a sweep-frequency generator, but this is not necessary. Entirely satisfactory performance can be obtained by judicious use of a grid-dip meter and a final touch-up using on-the-air signals. The gain of the unit is adequate to give very good performance, even with some mistuning.

PENTODE OR TRIODE MIXER?

Triode mixers are commonly used in v.h.f. converter service in preference to pentodes because of their generally lower noise figure. This is an important consideration only when no r.f. stage or an ineffective stage is used. The performance of the triode-pentode combination already described is such that the mixer following it has substantially no effect on the noise figure of the system, so the following desirable features of a pentode mixer can be made use of.

* Reprinted from "QST," February, 1953.

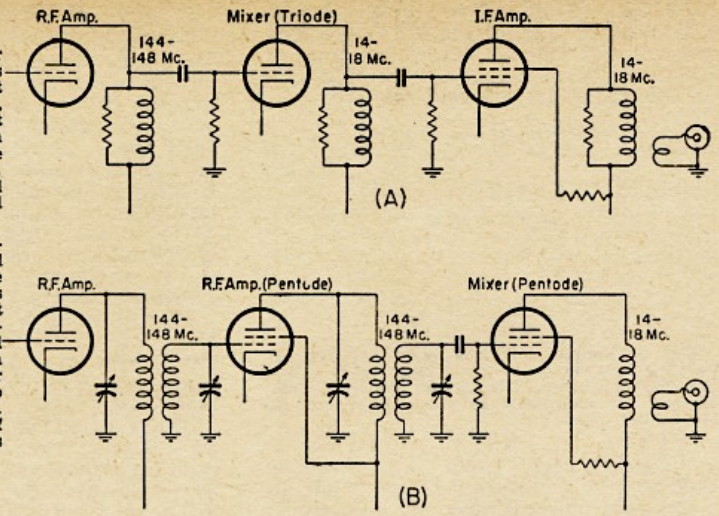
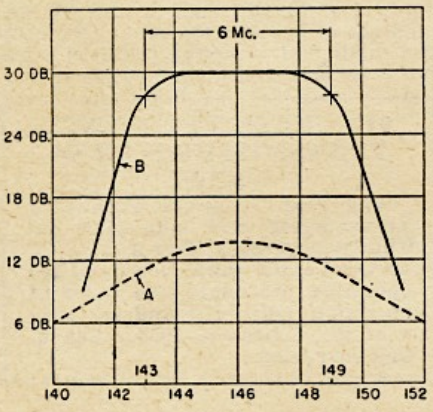


Fig. 1.—Basic converter circuits, showing methods of broadbanding. Circuit A has resistive loading, resulting in the broad but low-gain response shown by the dotted line in the graph below. An i.f. amplifier stage is needed for satisfactory over-all gain.

In B, double-tuned circuits between the r.f. and mixer stages to give the desirable characteristics of Curve B. The first stage, a triode, is followed by a pentode to build up gain. The mixer can be either pentode or triode. Gain is equal to the above, without an i.f. stage, and rejection of unwanted signals is greatly improved.



Properly designed, the pentode mixer is less susceptible to oscillation trouble than a triode. It affords better isolation between r.f. and i.f., and consequently contributes to the ability of the converter to reject signals on other than the desired frequency range. The better pentodes have higher conversion gain, making an i.f. amplifier following the mixer unnecessary. Pentodes generally require less injection voltage than triodes, making the work of the oscillator-multiplier chain easier.

The design of a mixer to follow an effective r.f. amplifier system is not critical. Generally speaking, the principal consideration is to set up the operating conditions of the pentode so that it draws the lowest plate current consistent with satisfactory output.

OSCILLATOR-MULTIPLIER CONSIDERATION

The oscillator portion of the converter uses a crystal operating on its third overtone, permitting selection of the crystal from readily available frequencies in the 7 to 8 Mc. range. The actual frequency is dependent on the intermediate frequency selected. Choice of the i.f. is a matter for later discussion. The final multiplied output should be 144 to 148 Mc. minus the desired tuning range of the low-frequency receiver. An example is an injection frequency of 130 Mc., allowing the receiver to be tuned from 14 to 18 Mc. to cover the 144 Mc. band. This is achieved by a 7,222 Kc. crystal operating on its third overtone, which is then multiplied by a factor of six.

Many other possibilities exist, though this one provides for the use of a low-cost crystal and a simple multiplying chain. It is desirable to keep the frequency multiplication to a minimum, as the more multiplication there is involved, the more complex becomes the signal fed into the mixer tube, and consequently the greater the danger of mixing the incoming signals with frequencies other than the desired one, resulting in "birdies" across the band.

A typical case develops if high-order harmonics, other than the desired 130 Mc., get into the mixer tube together with the sound or picture carriers of t.v. Channel 7, which can be very disconcerting if a transmitter is operating on that channel locally. There are many other possibilities, of course, but suffice to say that it is highly desirable to minimise the presence of other than the desired frequencies at the mixer grid.

Occasionally, it will be found that local interference problems can be solved by suitable choice of multiplier frequencies following the crystal oscillator, selecting these frequencies so that none is higher or lower than a local service by the amount of the intermediate frequency. Normally the stage following the overtone oscillator multiplies the frequency by two, and another stage runs as a tripler. This sequence is desirable in the presence of a strong t.v. signal on Channel 7, but there may be other cases where the order of frequency multiplication can be reversed to advantage.

In addition to choice of frequency multiplication according to local conditions, it is important that adequate filtering of unwanted harmonics of the crystal is provided in the plate circuit of the last frequency multiplier. This

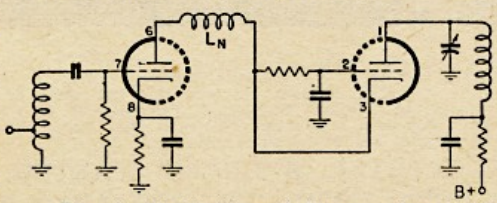


Fig. 2.—Modification of the cascode circuit suitable for 2 metre r.f. amplifier service. The coil Ln is resonant at the middle of the band with the input capacitance of the second triode section. Its adjustment is not critical. Suitable tubes are the 6BQ7A, 6BK7 or 6BZ7.

can be done with undercoupled double-tuned circuits, but in this instance it has been found adequate to use a high Q plate circuit loosely coupled to the mixer grid by means of an inductive link.

MECHANICAL LAYOUT

Several desirable objectives can be attained by proper layout of components for a crystal controlled converter. There are two general approaches to the problem of adequate isolation and reduction of feed-back. One is to build compactly and resort to rather complicated shielding and filtering. Another is to build somewhat larger, in order to provide space for a layout that will achieve the same ends.

Stability, that is freedom from feed-back, is accomplished in the r.f. portion of the converter by careful positioning of the r.f. inductors, and phasing of the windings for minimum unwanted coupling between stages. Capacitive coupling between r.f. stages is held to a minimum by designing the r.f. inductors so that their hot connections (to plate and grid) occur at opposite ends of the coil structure. Components in the oscillator-multiplier chain are so placed as to prevent strong local fields therein from adversely affecting the performance of the r.f. portion.

Complete shielding from strong external fields is important, as is the prevention of signal pick-up at the intermediate frequency by any portion of the converter circuitry. This is achieved in a very simple manner by building the converter entirely on a metal plate that is then fitted to a chassis or metal-lined box to complete the metal enclosure. Connection from the converter to the communications receiver should be made with co-axial line, the outer conductor of which is connected to the case of the converter and to the receiver shielding. In the case of extremely strong local signals on the intermediate frequency, it may be necessary to add a shielding box around the receiver antenna terminals.

DESIRABLE RECEIVER CHARACTERISTICS

The communications receiver with which the converter is used plays an important part in the over-all performance of the v.h.f. receiving system. Desirable receiver attributes could be stated in general as follows: The receiver should have very good image rejection in the frequency range that is to be used as the i.f. band for the crystal controlled converter. It should be well enough shielded to prevent direct pick-up of signals in the i.f. range. The receiver oscillator and beat frequency oscillator should be stable, if maximum advantage is to be derived from the use of crystal control in the converter. The tuning range that is to serve as the intermediate frequency should have sufficient bandspread so that signals may be tuned in easily and spotted readily as the receiver is tuned across the i.f. range. Some receivers are deficient in this category, particularly those that have separate bandspread and general coverage dials.

The local oscillator of the communications receiver should be of low amplitude, be thoroughly shielded and of

low harmonic content, and preferably applied to an inner grid of a pentagrid type mixer. When this is done, the oscillator voltage is effectively isolated from the signal input grid voltage by means of the screen. It is especially important that there be no oscillator voltage appearing at the antenna input terminals of the receiver, for such voltages even at very low amplitude will cause "birdies" in the tuning range.

It is not necessary that the receiver be outstandingly sensitive; in fact, it may be desirable to have less than the usual sensitivity, as the converter has quite high gain in its own right.

If the receiver has inadequate image rejection (less than 1,000 times) at the frequency chosen for the converter output, repeat signals will appear at twice the receiver i.f. away from the main response. That is, if the communications receiver i.f. is 455 Kc., the 2 metre signals will repeat 910 Kc. away from the proper frequency. This is a characteristic of the communications receiver, and nothing can be done about it in the converter. In general, it may be said that single conversion receivers having one r.f. stage or none at all will have inadequate image rejection in the 14 to 18 Mc. region. Single conversion jobs with two tuned r.f. stages will be much better, but double conversion receivers with a higher first intermediate frequency are the best of all.

If the converter is to be used with inexpensive receivers having poor image rejection at 14 Mc., better results will be had with a lower converter i.f., such as 7 Mc. Using 14 to 18 Mc. has a special advantage for 144 Mc. converters, however—it allows direct reading of frequency from the receiver tuning dial, 14 Mc. being 144, 15 Mc. 145, etc.

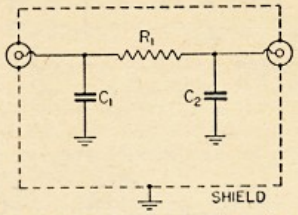


Fig. 3.—Simple low-pass filter for use in keeping receiver oscillator energy from entering the converter through its output cable. C1 and C2 are about 20 pF., R1 should be 100 to 200 ohms.

Where energy from the receiver oscillator is radiated through leads to a separate power supply, or as a result of inadequate shielding, harmonics of the oscillator frequency may cause many fast-tuning birdies in the tuning range. The rapid-tuning characteristic identifies them as harmonics, the speed of tuning being related to the order of the harmonic. One otherwise excellent receiver that is troublesome in this respect may be corrected by the use of shielding over the power supply cable and filtering of the individual leads where they come out of the receiver. A simple low-pass filter such as is shown in Fig. 3 may help in minimising this trouble in cases of inadequate oscillator shielding. This should be inserted in the line between the converter and the receiver input terminals.

PERFORMANCE

A typical 144 Mc. converter based on the design thoughts here discussed will have a noise figure of 4 to 5 db, depending on the tubes used. Rejection of spurious signals will be a minimum of 1,000 times, and will be that low only on signals around 116 Mc., a little-used frequency that should cause no particular difficulty. Response to signals in the 14 to 18 Mc. range, often troublesome in crystal controlled designs, is too low to be measured; in other words, in excess of 100,000 times.

The response in the region of the 144 Mc. band, shown in Fig. 1, is essentially flat across the band itself, dropping sharply a short distance from either band edge.

Though the 144 Mc. band is used as an example, the same principles have been applied successfully to bands from 28 to 420 Mc. By suitable attention to minimising spurious responses, the stability of crystal control and the advantages of broadband design can result in a quality of reception on these bands that is available through no other means.

ACCURATE FREQUENCY TRANSMISSIONS FROM VK3WI

The next Accurate Frequency Transmission will take place on Thursday evening, 27th Aug., 1953, on the 3.5 Mc. band. Details of the operating procedure and times of operation will be found on page 6 of the February, 1953, issue of this magazine.

AMATEUR TELEVISION

PART TWO—DESCRIPTION OF EQUIPMENT

BY E. CORNELIUS,* VK6EC

FLYING SPOT SCANNER

The VCR112 cathode ray tube used as a scanner provides the only source of illumination for the object being viewed. Thus the brilliance of the spot must be high, and for reasons shown below, the scanning spot must be as small as possible. This entails an e.h.t. supply of the order of 3 kilovolts. This high voltage, together with the design of the tube, gives a very low deflection sensitivity, being 0.25 mm. and 0.14 mm/volt. Thus a horizontal deflecting voltage of the order of 500 volts peak/peak is required, and somewhat less vertically.

To provide this, necessitated the use of 6V6 tubes in push-pull in each amplifier. The anode loads had to be reasonably low (25,000 ohm) to preserve the rapid flyback of the horizontal sawtooth (5,250 c.p.s.). A higher anode load would result in capacitive shunting of the sawtooth potentials, and curvature at the commencement and end of flyback.

A long tailed amplifier (cathode coupled) is used for the vertical deflection, but for horizontal deflection, a 6J5 phase splitter is used in order to obtain the maximum from the 6V6 deflection amplifiers.

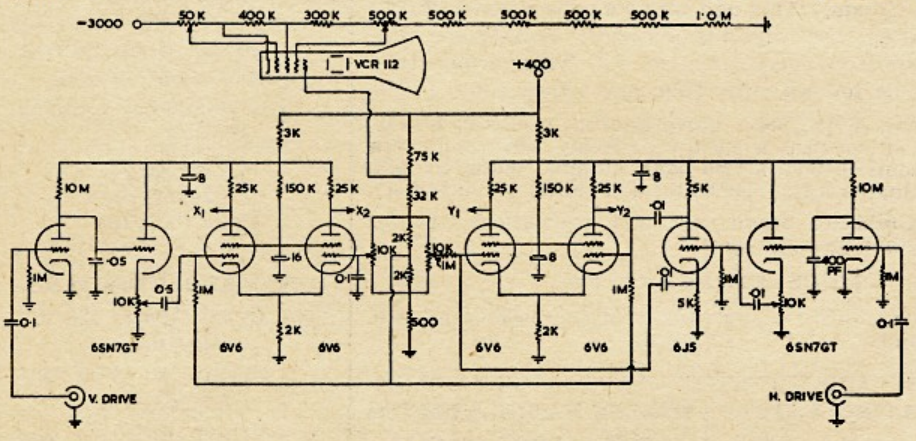


FIG. 2. FLYING SPOT SCANNER

The inputs to the discharge tubes from the sync. signal generator are short duration positive going pulses of about 25 volts peak. A 6SN7GT tube is used for each discharge tube and its cathode follower. Cathode followers are used in order to provide a low impedance point for gain control, to set the dimensions of the raster. Balanced shift controls are provided in order to avoid astigmatism. For the same reason, the mean plate potentials of the deflection amplifiers, and the final anode potential of the VCR112 were adjusted to match within 5 volts. This keeps the spot well focussed over the whole of the screen.

A circuit diagram of the flying spot scanner is shown in Fig. 2.

In order to minimise electromagnetic and electrostatic pick-up by the c.r.t., a double sheet metal magnetic screen is fitted around the tube barrel. Two 24 gauge g.i. shields were found to be more effective than a heavy pipe. They are spaced about ⅛" apart.

The whole is enclosed in an aluminium case, with the controls (shift, focus, etc.), brought out at one side. This leaves the tube face end free for mounting a transparency or lens system. The power supply is external, and all power is brought in by cable. Incidentally, the three kv. e.h.t. is brought in the main cable (pushback wire, and Amphenol octal plugs) without any sign of arcover, or brush discharge.

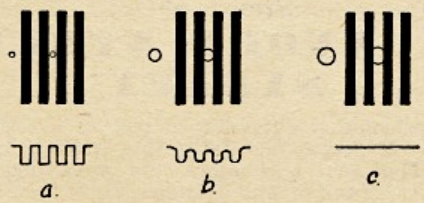


FIG. 3. EFFECT OF SPOT SIZE

SPOT SIZE

The flying spot must be very small, as this can be the limiting factor in both horizontal and vertical resolution. For example, taking a bar pattern of the form shown in Fig. 3a, for a spot smaller in diameter than the width of the bars, the output signal, which is proportional to the instantaneous light, will be an approximation to a square waveform as shown, and the resolution will be excellent.

For a spot wider than the bar, as shown in Fig. 3b, at any instant, the spot will be over both part of a black and a white bar. The signal will be of lower amplitude, and reproduced as shades of grey. rather than black and white, and the resolution will be poor.

For a spot equal in width to a bar and space, the light output will be constant, and no signal will be received. This point is termed the first zero frequency (of the output wave), and is the limit of resolution due to spot size. In practice, it is possible to apply electrical compensation up to about 90% of the first zero frequency. See Fig. 3c.

The screen of the VCR112 has a rather rough matt finish, causing some halation, and an effective enlargement of the size of the spot. No further reduction of spot size beyond that already obtained, seems to be possible, so that for this tube, 250 lines seems to be the limit of resolution.

SCREEN PERSISTENCE

After excitation of one small element of the phosphor by the electron beam has ceased, as the spot moves on, the light from this element, ideally, should cease instantly. The time taken for the phosphor glow to be reduced to 10% of its excited intensity is termed the screen persistence.

It will be seen that if the persistence is long, the effect will be that the spot has a "tail" of length proportional to the screen persistence, and the writing rate of the beam. Light will be coming from parts of the screen other than the part excited at any instant, by the beam, and signal proportional to the total illumination of this whole area will be obtained from the photocell. If the effective elongation of the spot is considerable. fine detail in the picture will be masked, and resolution lost.

The persistence of the VCR112 is fairly short, of the order of 30 usec. This is still far too long for resolution of the order of 2 usec., but fortunately considerable correction can be applied in the video amplifying stages, and will be described later.

As the light from the screen is a continuous spectrum, giving the effect of white light, I considered it possible that different colour components of the light might have differing persistence. Experiments with colour filters showed that a blue filter would decrease the effect somewhat, and a green filter would increase it.

The method used was as follows:—

The flying spot scanner raster was covered with a mask having a slot to expose a small area. Ideally, the signal received would be a square wave, as shown in Fig. 4.

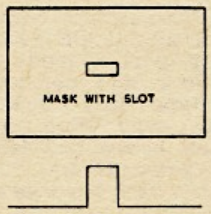


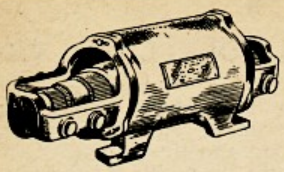
FIG. 4. IDEAL RESPONSE — SLOT

The oscillograph was connected to trace the waveform at the output of the photocell, and was of the form shown in Fig. 5a.

Three points, marked A, B and C, show departure from the ideal.

Curves A can be accounted for by the shape of the leading edge of the spot, and probably would not exist if a square spot could be used for scanning. The curvature is so slight as not to effect the resolution. Its very existence

* C/o. Station 6WA, Wagin, Western Australia.



TYPE 72 GENEMOTORS

These Genemotors can be simply converted to run as a fractional horse power 230-250v. AC Motor, by merely altering the connections. An ideal piece of bench equipment for the handyman and hobbyist. Dimensions: 7" long, 3½" diam. and a 1½"-3/16" grooved pulley is supplied. Price **39/6.**

Post. & Pack.: 5/-, Interstate 7/-.

TRANSMITTER-RECEIVER
Type RT-34/APS-13

Frequency Modulated, approx. 450 Mc. Valve line-up:
9—6AG5
5—6J6
2—2D21
1—VR105

Also contains Dynamotor, input 27v. 1.5 amp., output 285v. 60 Ma. **Price £17/10/-.**

TRANSMITTING TUNING UNITS by General Electric

Type TU10B
10000 to 12500 Kc., **£2/10/-**

Type TU7B
4500 to 6200 Kc., **£2/10/-**

Type TU6B
3000 to 4500 Kc., **£3/10/-**

Type TU9B
7700 to 10000 Kc., **£2/10/-**

CONTROLLER, TYPE 4

Aircraft Transceiver remote control. Containing a 5-bank cancelling push-button switch, lock and non-lock; P.M.G. type Key Switch, small two-way Plug, and five small bezels and lamp holders. Price **17/6.**

Post. & Pack.: 4/6, Interstate 6/-.

TRANSMITTERS
Type TR3548

Containing Valves: 1 Rectifier VU111, 1 EF50, 1 10 Cm. Magnetron Valve complete with magnet, 1 Crystal Diode Type 1N21; and 1 24v. Blower Motor. Brand new. Price **£5/19/6.**

WALTHAM

319-321 SWANSTON STREET, MELBOURNE, C.1

393 FLINDERS STREET, MELBOURNE, C.1

Address all Correspondence to:
Box 5234, G.P.O., Melbourne, C.1

For the convenience of our Customers in New South Wales and Queensland, we have now opened a Branch at—

96 OXFORD STREET, SYDNEY

A cordial welcome is extended to pay us a visit and Mail Orders will be despatched from this Branch in order to allow our Northern Customers the advantage of lower Freight and Postage Costs.

RADIO TRANSCEIVER AND INDICATOR UNIT
V.H.F. Approximately 180 Mc.

Type 1045. Valve line-up in Transceiver: 2—RL18, 1—VR135, 1—5V4, 1—EA50, 1—RL37, 6—EF50, 1—6SN7, 1—GL2050 (Thyrotron), 2—VR150/30 (Voltage Regulators), 1—884 (Gas Triode). This unit also contains a motor driven Selector Switch, two superbly designed Polystyrene six-position rotary Coil Turrets, and an I.F. Transformer strip ideally suitable for use with Television. Band width 10 Mc.

Indicator Unit, Type 1047, Valve line-up: 7—EF50, 1—879, 1—VR54. Also contains a 3,000 type Relay 2,000 ohms, ten assorted Potentiometers, a two-bank Ceramic Wafer Switch, and an illuminated scale (5BP1 tube and shield not included).

These two Units are brand new, and are packed together in their original packing cases.

PRICE **£21/10/-** the two.

Transceiver .... £15/0/0 } if supplied separately.
Indicator Unit .... £7/10/0 }

MODULATING UNIT

Type 169, containing Klystron Tube, three Neon Stabilisers, one EF50, two half-wave Selenium Rectifiers, one 5U4 Rectifier, one CV85, Potentiometers gears, Resistors, high voltage Condensers and Transformer. Price **£4/19/6.**

AERIAL CONTROL BOX

Type 442A, contains 50 pF. Western Electric Condenser, Aerial Indicator Meter 0-10 amp. Thermo-couple, 24v. miniature Relay, and useful connecting terminals. Price **35/-.**

Post. & Pack.: 3/6, Interstate 4/-.

BENDIX RADIO AZIMUTH CIRCLE LOOP AERIAL CONTROLS, Type MN22A

Price **35/-.**

Post. & Pack.: 4/9, Interstate 6/-.

CRYSTALS

500 Kc., mounted on panel with various other useful components. Price **£1/10/-.**

Post. & Pack.: 3/6, Interstate 4/-.

METERS

Special Offer. Three R.F. Meters, amp. or milliamp., various ranges, all in good condition. Useful for conversion and re-calibrating. Three for **22/6** Post Free.

TRANSMIT. CONDENSERS

Neutralizing—

National type NC75, 3 inch Plates **30/-**
B.U.D. type NC853, 2 inch Plates **25/-**

Midget Transmitting—

Single type NC897 35 pF **25/-**
Dual type NC928 15 pF. **30/-**

Dual Transmitting—

JC 1562 150 pF. **£3**
JC 1561 110 pF. **£2/10/-**
JC 1560 80 pF. **£2/10/-**
JC 1569 200 pF. **£3/10/-**
JC 1552 70 pF. **£2/10/-**
JC 1567 40 pF. **£3**

Single Transmitting—

JC 1521 33 pF. **17/6**
JC 1532 55 pF. **£1/5/-**

Post. & Pack.: 4/-, Interstate 5/-.

HAND GENERATORS

Gibson Girl Hand Crank Generators. Output: high voltage 250v. 100 Ma., low voltage 6-8v. 2 amp. Ideal for conversion to power supply for portable transmitter. Also suitable for conversion to Wind Battery Chargers. Price **£4/10/-.**

Post. & Pack.: 5/-, Interstate 6/-.

COMMAND MODULATOR UNIT, Type BC456E

In new condition, contains:
1—12J5
1—1625
1—VR150/30
3—24v. Relays
Price, £3/10/-

COMMAND RECEIVERS

Type BC453, 190 to 550 Kc., **£12/10/-.**

BC454, 3 to 6 Mc., **£7/10/-.**

BC455, 6 to 9.1 Mc., **£7/10/-.**

COMMAND XMITTERS

Type BC457, 4 to 5.3 Mc., **£7/10/-.**

BC458, 5.3 to 7 Mc., **£7/10/-.**

BC459, 7 to 9.1 Mc., **£7/10/-.**

COMMAND RECEIVER CONTROLS, Type BC450

3—Slow Motion Dials.
6—Single Pole Double Throw Switches.
4—Miniature Jacks.
3—Volume Controls, approx. 500 ohms.
Price, £1/15/-.

Post. & Pack.: 6/-, Interstate 8/6.

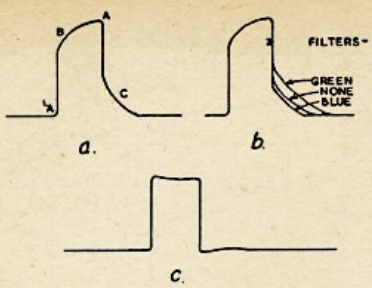


FIG.5. EFFECT OF SCREEN PERSISTENCE

is doubtful, as the oscillograph used has a response falling from 100 Kc., and could account for it.

Curves B and **C** are due to screen persistence, the effect being an integration of the total light from spot and tail. The effect of blue and green filters is shown in Fig. 5b.

Video circuit correction for the tail, by "high peaking" will provide excellent compensation. as shown in Fig. 5c. Thus the use of a blue filter seems of little value, as it causes considerable light loss, and the improvement in the correction of persistence is small.

The effect of phosphor persistence on the reproduced picture is that a sharply defined white area is followed by an area of decreasing white "smear," and a black area by a black "smear." High peaking removes it completely.

POWER SUPPLY

This is a separate unit, and is a normal supply giving 400 volts positive for the discharge tubes and amplifiers. An e.h.t. supply of 3 kv. negative is obtained from a radio frequency e.h.t. oscillator and 2X2 rectifier.

A commercial e.h.t. oscillator coil was used at first, but failures due to repeated arcovers forced me to make a unit, using a slotted former of loaded ebonite. Six slots, $\frac{1}{8}$" wide and 3/16" deep, spaced $\frac{1}{8}$" were cut in a $1\frac{1}{4}$" former. The end slots carry 60 turns of 30 gauge B. & S. enamel wire, for the tuned plate, and grid tickler windings. The centre four slots each have 200 turns of 34 gauge B. & S. enamel wire, this being the self-tuned e.h.t. winding. A 6V6 tube is used as oscillator, and the output voltage is readily controlled by varying the plate voltage of the tube. A filament transformer, 4 volts at 1 amp., insulated for 3,500 volts, was made for the c.r.t. filament.

Fig. 6 shows a circuit of the r.f. e.h.t. supply.

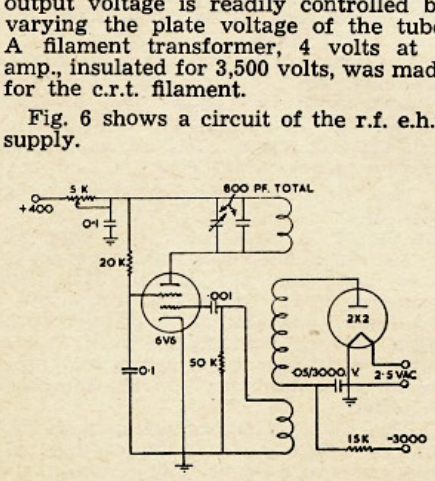


FIG. 6. F.S.S. E.H.T. SUPPLY

PHOTOCELL AND PREAMPLIFIER

The 931A photocell used is a multiplier type, with a nine stage multiplier. Upon the incidence of light, electrons are emitted from the photocathode, and electrostatically focussed on to the first dynode. The dynodes are treated to emit copious secondary electrons. Provided that they emit more secondaries, than primary electrons received, amplification takes place.

By focussing secondary electrons progressively on to the next dynode, considerable amplification is possible (up to 200,000 times). The final anode will therefore collect many times the electrons emitted initially by the photocathode. The tube is not frequency sensitive, electron transit time being the only limitation, which is far above video frequencies.

Fig. 7 shows a schematic of the photocell and preamplifier.

For convenience in circuitry the final dynode is earthed, and 800 volts negative used to provide about 90 volts per dynode, for the multiplier. To avoid degeneration, this e.h.t. supply must be heavily bled to swamp the dynode currents. For this reason, the voltage divider consists of 20.000 ohms per stage, giving an e.h.t. bleed of 4.5 Ma.

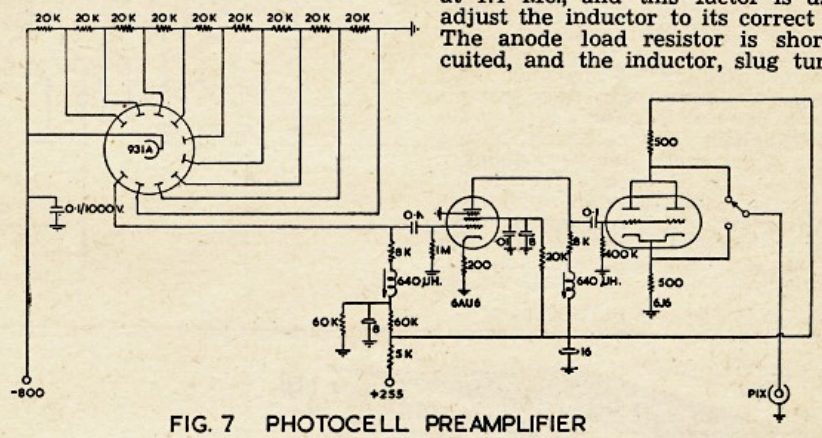


FIG. 7 PHOTOCELL PREAMPLIFIER

To maintain accurate dynode focus, the dynode to dynode potentials must be equal, so reasonably well matched (2%) resistors were used.

The anode of the 931A is fed from a regulated positive 255 volt supply, to apply 125 volts to this electrode, through a decoupling network.

In order that the frequency response of the system, before high peaking, should be substantially flat from 25 c.p.s. to 1 Mc., shunt peaked R.C. amplifiers were used throughout. The description of the method of shunt peaking which follows, refers to all the video amplifiers, except in the video mixer, where anode loads are so low that peaking is unnecessary.

SHUNT PEAKING

In this, the anode load of a stage consists of a resistor and inductor in series. They are so proportioned, that together with the total shunt capacitance of the stage, a flat response is obtained to the frequency desired, and a higher stage gain can be obtained than in an uncompensated stage.

The shunt capacitance of the interstage coupling elements to earth, and total input and output capacitance of the R.C. coupled tubes, is found as follows:—

1. The load resistor is replaced by an inductor of known value.

2. A signal is injected into the grid of the tube, which has the inductor as load, from an r.f. signal generator. With a vacuum tube voltmeter the frequency at which this total capacitance resonates with the inductor is found. From this frequency, and the known inductance, the shunt capacitance can be calculated.

As the measured capacitances were of the order of 24 pF. in each case, the reactance at 1 Mc. was around 8,000 ohms. This reactance controls the value of the load resistor of the P.E. cell and the video amplifiers.

The load resistor in the anode of each stage, was made equal to the reactance of the shunt capacitance at 1 Mc. With this load, without compensation, the response would be down 30% (3 db) at 1 Mc. An inductor is now inserted in series with each anode load resistor, with a reactance at 1 Mc. of half the anode load resistance. The response will now be flat to 1 Mc., falling rapidly at higher frequencies.

Under these conditions the inductor will resonate with the shunt capacitance at 1.4 Mc., and this factor is used to adjust the inductor to its correct value. The anode load resistor is short circuited, and the inductor, slug tuned, is resonated at this frequency. The short circuit of the anode resistor is now removed, and compensation has been effected. Each stage is adjusted individually.

At low frequencies (25 c.p.s.), the factors causing loss of gain are the reactances of the coupling capacitors, and of the cathode by-pass capacitors. Large coupling capacitors are used, with negligible loss, and the cathode by-pass was omitted, permitting degeneration, but not a serious loss of gain.

The 6AU6 preamplifier has a gain of about 35, which is sufficient to swamp noise, and provides a level to the cathode follower well above the hum level from the cathode of the cathode follower. With transparencies, an output of 1 volt peak/peak is easily obtained.

The cathode follower is a 6J6, with both triodes strapped in parallel, and with plate and cathode loads of 500 ohms. The plate load resistor enables a signal of opposite phase to that at the cathode to be obtained, but at a higher impedance. This enables a positive picture to be obtained from either a positive or negative transparency, and assists in correction, where the polarity

(Continued on Page 10)

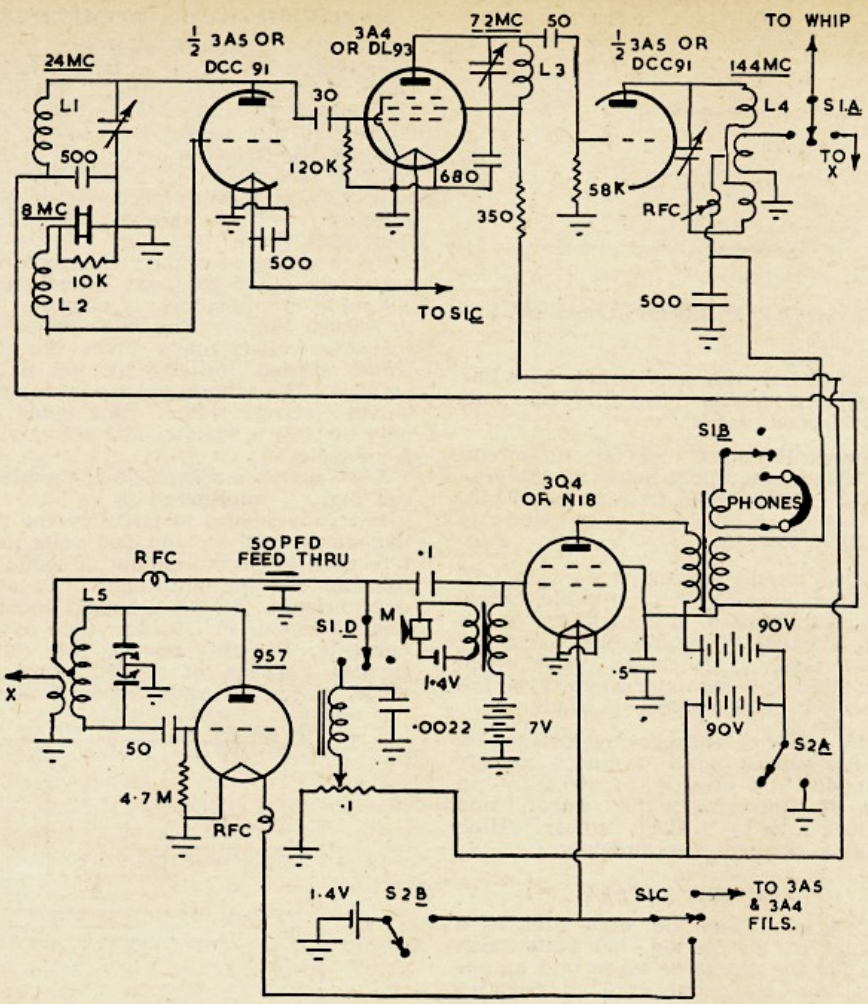
BATTERY PORTABLE FOR 144 Mc.

BY J. BAIL,* VK3ABA

A 50 Mc. low power battery portable using a crystal controlled transmitter and super regenerative receiver was described in May, 1951, issue of "QST." The transmitter consisted of one 3A5 twin triode in the r.f. section and a 3Q4 for the modulator. With a standard 8.4 Mc. crystal one triode section of the 3A5 served as a regenerative crystal oscillator on 25 Mc. while the other triode section was a frequency doubler final on 50 Mc.

The possibility of obtaining output on 144 Mc. from one of these tubes suggested itself. The only changes necessary were to provide an appropriate standard crystal, fundamental frequency 8 Mc., and, secondly, replacing the 50 Mc. output circuit with one on 144 Mc., thus making the frequency multiplication in the second section of the tube, six times, i.e., from 24 Mc. to 144 Mc.

A unit was built up on rather similar lines to the 50 Mc. job mentioned. Since a combination output and modulation transformer (from a 108 disposals Army set) was available, only one tube, a 3Q4, was used in the audio section for both transmitting and receiving; with a 957 as a super regen detector. Using a 90 volt minimax B battery for the h.t. supply, the unit worked effectively considering that the r.f. output was, naturally enough, extremely low. In



* 62 Shannon Street, Box Hill, E.12, Victoria.

combination with a quarter wave whip antenna it was possible to work the home station from a good location two miles away. However, in order to improve results from the nearer shielded locations, it was decided to increase the output from the final.

An extra tube, a 3A4 pentode, was installed as a trebler following the crystal oscillator to drive the final as a doubler. This meant more current drain on the batteries, but, as space was available in the case, two 90 volt batteries were installed, one for the 3A5 and 3Q4, the other for the 3A4 and 957. The improved performance made this well worth while.

The case for the rig was made from a standard 10¾" x 8" x 2½" aluminium chassis with the edges bent to form flanges for attachment of the back with self tapping screws. This leaves a space of two inches in the case.

The operating arrangement is to wear the unit to the side of the chest by means of a strap over one shoulder. A section of disposals military webbing was used for the strap. The whip antenna, 1' 7⅝" in length, plugs into a co-axial connector in the top of the case, and the controls are easily accessible with one hand while the other hand is available to hold the telephone handset.

The diagram shows the arrangement of the major parts. Some of them are mounted on a shelf which divides the case into two. The crystal socket is

arranged for external plugging in of the crystal and a four pin miniature socket is provided for the lead to the telephone handset.

The change-over switch, S1 (A, B, C, D), is a four pole, three position midget single wafer rotary job and embodies the following functions:—

(a) Aerial changeover.
(b) Connects the A battery to either receiver or transmitter tubes (the h.t. batteries being permanently connected to the tubes except when S2 (A, B) is open).
(c) Closes the low impedance headphone circuit in the receive position.
(d) Open circuits the 957 plate supply lead in the transmit position.

The double pole single throw switch S2 is turned off when the set is not in use otherwise the 3Q4 and potentiometer will draw current when S1 is in the central position.

TRANSMITTER TUNING

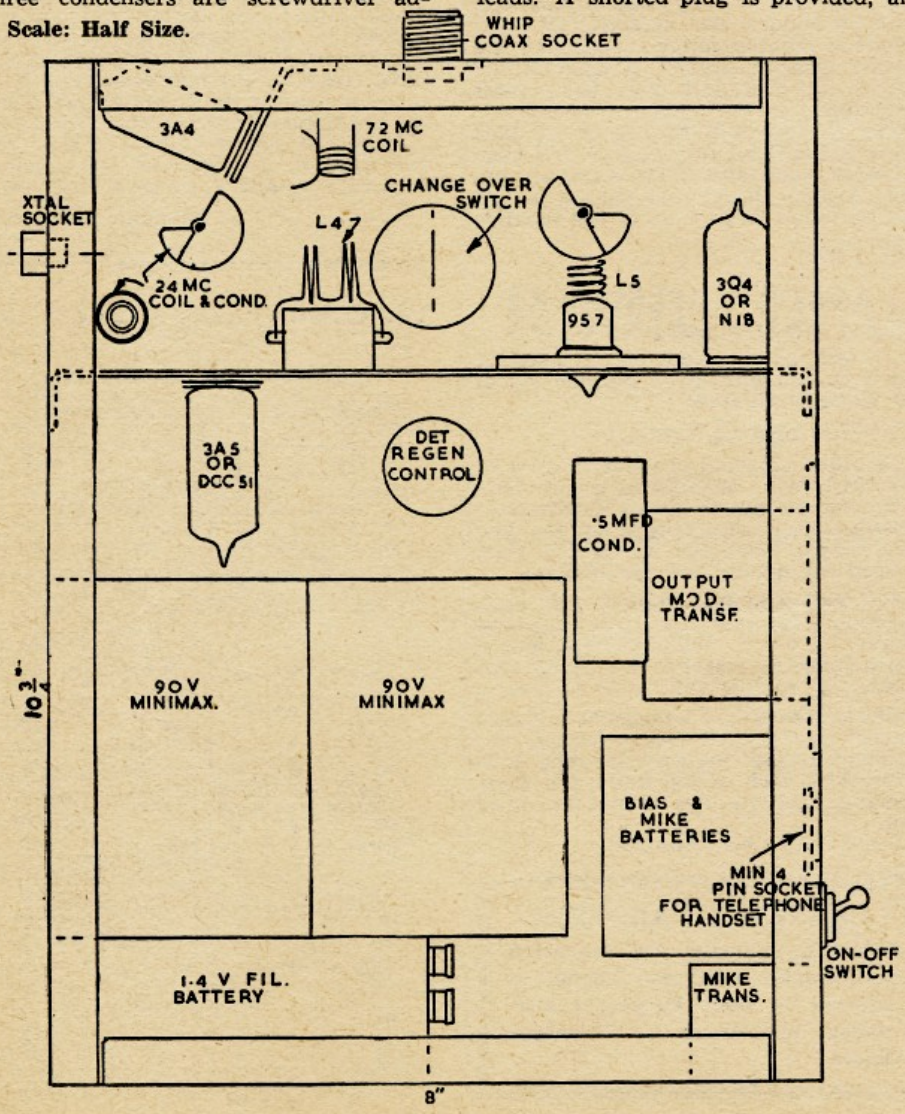
The tuning condenser in the crystal oscillator circuit has a maximum capacity of about 40 pF., and in the trebler plate circuit a 3-12 pF. ceramic trimmer is used. The final output circuit is tuned with a 1.5-7 pF. ceramic trimmer. These three condensers are screwdriver adjusted from outside. Indication of grid current with a temporarily connected meter in the trebler stage, served for checking crystal oscillator tuning, and grid current appears when oscillation takes place.

It was necessary to make certain that the crystal was controlling the oscillation, some adjustment of the amount of feed back being necessary. A communications receiver with an S meter provided an additional means of checking output, the circuits having been previously lined up with the aid of a grid dip oscillator. In peaking the trebler stage, maximum grid current in the final was aimed for. The final was then peaked with the help of S meter indication in the receiver with two metre converter.

To economise in battery current, it is essential to keep transmissions brief. A "B" eliminator supply was found to be most useful when tuning up and testing.

In this connection, a practical suggestion has been made by the Technical Editor applying to bench testing of any portable or mobile gear which is normally operated directly or indirectly from batteries. This is to install a socket in a convenient location in the gear, connected in series with the internal supply leads. A shorted plug is provided, and when testing at home this may be withdrawn and replaced by one with supply leads running to some a.c. derived power supply in the shack.

Scale: Half Size.



COIL DATA

L1—14 turns, 9/16" diam.
L2—8-10 turns, 3/8" diam., wound in opposite direction to L1, mounted inside L1, with crystal end coinciding with cold end of L1.
L3—4 turns, 3/4" diam.
L4—4 turns, 9/16" diam.

A.O.C.P. CLASS

The Victorian Division A.O.C.P. Class will commence on Thursday, 30th July, 1953. Morse and Regulations are held on Monday and Theory on Thursday evenings from 8 to 10 p.m. Persons desirous of being enrolled should communicate with the Secretary W.I.A., Victorian Division, 191 Queen Street, Melbourne (Phone FJ 6997 from 10 a.m. to 4 p.m.), or the Class Manager on either of the above evenings.

AMATEUR CALL SIGNS

FOR THE MONTH OF JUNE, 1953

ADDITIONS

VK—

New South Wales

2EB—K. S. Mullan, C/o. Post Office, Raleigh, North Coast, N.S.W.
2XZ—N. C. Seymour, "Evandale," via Forbes.
2AOY—A. Kitchen, 9 Eddy Road, Chatswood.
2ASA—D. L. Pearsall, 52 Railway St., Wyong.
2ATW—T. E. Whitfield, 12 River Rd., Oatley.

Queensland

4GI—G. N. Chapman, Royal Hotel, Mount Garnet, North Queensland.
4NJ—N. Jones, 31 Swan Terrace, Windsor, Brisbane.

South Australia

5DD—D. N. Campbell, 8 Wotton St., Cheltenham.
5EF—E. C. Daw, East Terrace, Gawler.
5PM—J. B. Porter, 137 Anzac Highway, Grassmere.

Western Australia

6FM—R. H. Mould, 33 Aurelian St., Palmyra.

Territories

9AD—E. P. Black, Radio 9PA/VLT, Pt. Moresby.
9AH—A. J. Humphries, Buin, Bougainville, T.N.G.
9GV—G. V. Campbell, C/o. A.W.A. (Box 13), Lae, T.N.G.
9MG—G. W. Mullins, C/o. M.V. "Wallach," Lighthouse Tender, Samarai, Papua.

ALTERATIONS

VK—

New South Wales

2FV—"Signalling School," No. 6 Jetty, Circular Quay, Sydney.
2XU—485 Miller Street, Cammeray.
2AGW—19 Trafalgar Street, Stanmore.
2AFW—223 Cornish Street, Broken Hill.
2AIP—25 Maher Street, Hurstville.
2ARK—Postmaster, Bourke.
2ARL—Station: 219 Pacific Highway, Hornsby; Postal: 68 Eastwood Ave., Eastwood.
2AVM—Flat 2, 9 Hipwood St., North Sydney.
2AVP—Station: Ainslie Hostel, Canberra City; Postal: Reid House, Canberra City.
2AWH—34 Robert Street, Belmore.

Victoria

3AO—Flat 4, 552-4 Victoria Pde., E. Melbourne.
3FW—24 Logan Street, Canterbury.
3IY—374 Balwyn Road, North Balwyn.
3NU—315 Canterbury Road, Canterbury.
3PV—29 Narong Road, Caulfield North.
3QN—42 Berkely Street, East Oakleigh.
3RU—16 Koonung Street, Nunawading.
3WS—12 Denbigh Street, Frankston.
3AHM—York Way, Aspendale.
3AJG—Bambury Street, Boronia.
3AMZ—54 Cummins Road, Moorabbin.
3ANU—Postal Address: 315 Canterbury Road, Canterbury.
3APV—Station: C/o. O.T.C. Receiving Station, Rockbank; Postal: 29 Narong Rd., Caulfield North.

Queensland

4RL—Brenda Street, Morningside.
4WI—C/o. J. P. Baker, 20 Cromwell Street, Wooloowin.
4XD—Station: 18 Garrick St., West End, Townsville; Postal: C/o. Station 4TO, Townsville.

South Australia

5CU—7 The Grove, Dulwich.
5GF—255 Angas Street, Adelaide.
5HE—Postal: C/o. Mrs. Goode, 26 Areland Ave., Trinity Gardens; Station: National Bank, John St., Salisbury.
5LU—10 Dwyer Avenue, Oaklands Estate.
5RF—Alice Terrace, Murray Bridge.
5RF—Name should read: P. R. Parasiers.

DELETIONS

New South Wales: VKs 2AE, 2ER, 2IN, 2XF, 2ABL, 2AKY, 2AOV, 2ATF.

Victoria: VKs 3HY, 3KI, 3LC, 3MJ, 3ZW, 3AGF (now operating under VK4GI).

Queensland: VKs 4AD (now operating under VK9AD), 4DK, 4FY, 4LH.

South Australia: VKs 5CV, 5EB (now operating under VK2EB).

Tasmania: VK7NM.

Territories: VKs 9FM (now operating under VK6FM), 1EM, 1JW, 1RR.

REMEMBRANCE DAY CONTEST

Amateurs in the VK1 call areas have expressed their keen desire to participate in the annual Remembrance Day Contest, not because they can expect to compete for the Trophy attached to the Contest, but because of the spirit on which it was founded—the remembrance of those of our ranks who passed beyond the vale in the service of their Country during two world wars, in particular World War II.

There is no reason why they should not have this privilege extended to them except that, administratively, it is difficult from the point of view of scoring.

Federal Council has agreed to their participation, and in doing so has decided to award **six points per contact per band for VK1 contacts for all States.** Until the result of their participation is analysed in the final scores, it is justifiably fair to award the same points in each State.

The Federal Council has authorised the Federal Executive to obtain the Log Sheets from the VK1 call areas and this will be done in time for the final result checking.

Rule 5 is amended to read: A station may be operated by more than one operator under the station call sign provided that operators, other than the station licensee, submit a separate log under his own call sign for contest purposes.

The Contest will commence at 1800 hours E.A.S.T. on 15th August and continue through until 1759 hours on the 16th August. Rules and scoring details will be found on page 10 of last month's issue.

— . . . —

AMATEUR TELEVISION

(Continued from Page 7)

of a test pattern can be reversed at will. At the cathode, a positive signal for white is obtained.

POWER SUPPLY

In order to avoid changes in gain of the 931A, with changes in mains voltage, and to avoid mains fluctuations effecting the video output of the low level stages, regulated h.t. of 255 volts is used throughout the preamplifier.

800 Volt Supply.—Another r.f. e.h.t. generator is used for this negative supply. A 6V6G oscillator tube, and a coil similar to that for the flying spot scanner gives this voltage at 4.5 Ma.

Due to the lower voltage and higher current, the transformer windings are different, in that the e.h.t. winding is in three slots, each of 100 turns, the other windings and spacings as for the other unit.

(To be continued)

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

EDITORIAL

(Continued from Page 1)

bers of the Advisory Committees. They have no fear of having their names published because they are out to help the Amateur, not hinder and victimise him.

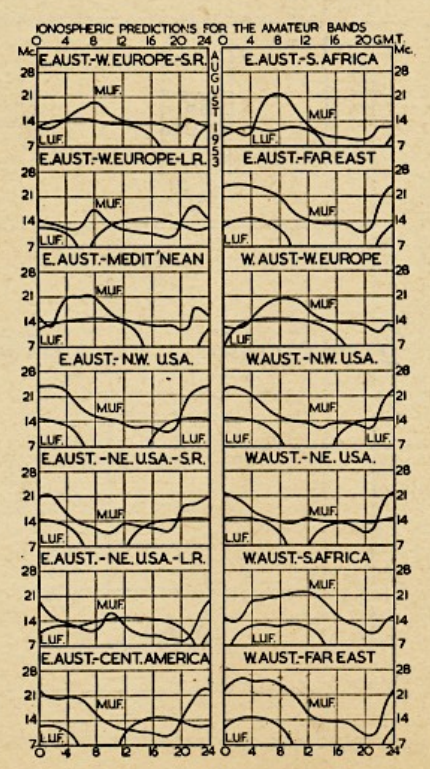
The Institute members of these Committees are nominated by each Division annually to protect the Institute members' rights as well as to assist the Department in keeping law and order on the Amateur bands. Don't forget that! In representing the Institute these members have a directive, a policy, something to work towards and which is laid down in the Institute records and the rules under which the Committees function.

The non-member representative has a more difficult task because he must represent Amateurs who are not organised to assist or direct him, but nevertheless he is a man chosen by the Department for his fair-mindedness and his impartiality in dispensing discipline whether to members of the Institute or otherwise.

You can talk to these men on the air and they will be pleased to co-operate with you in advising you where you or your transmission is at fault. If you receive a pro forma for some misdemeanour, it shouldn't be because you have erred for the first time. You have a say in putting the Institute man there on the Committee to protect your own interests so you should be sure he has the qualities required of him—**justice, impartiality, and a sense of fair play.**

FEDERAL EXECUTIVE.

PREDICTION CHART FOR AUG., 1953



FIFTY MEGACYCLES AND ABOVE

NEW SOUTH WALES V.H.F. GROUP

A meeting of the V.h.f. Group was held at Science House, Small Hall, on 5th June, 1953. The attendance was good and included a number of visitors. Members present were VKs 2OA (President), 2AJZ (Secretary), 2ANF, 2AOA, 2HE, 2PU, 2ASK, 2OF, 2HO, 2LG, 2AQB, 2APQ, 2QZ and XYL, 2ARF, 2AST and 2ASU. After the usual business, Dr. Bob Black, 2QZ, gave a commentary with coloured slides of his recent visit to the Trobean Islands. This was particularly interesting, showing living conditions and type of people on these islands. We all wish to thank Dr. Black for an entertaining evening. The lecturer, Mr. Bob Winch, 2AOA, then gave an interesting resume of circuit drawing and of the difficulties therein. A vote of thanks was given by Alan 2AST to Dr. Black and Bob Winch on behalf of the V.h.f. Group.

Alan 2AST was the recipient of a very nice cup, won by him on a field day some months ago. Alan was on Mt. Tomar operating from a car during very wet weather and put up the top score. Congratulations Alan. We are sorry to hear of the departure of 2ABB from VK2; he will be a loss to us on 2 mx. Berry is off to VK3 land, we wish him "Au Revoir" and best of good luck. We welcome 2ACU of Manly to the v.h.f's., he was heard in contact with 2ABB; keep a look out for him on 146 Mc.

2LG has a lift in power these days and puts out a healthy signal on 144. Cliff is v.f.o. controlled. Wal 2SA has been getting out well and has heard 2BZ of Newcastle at S8 to S9 and hopes to contact him. Bill 2ABZ has acquired a new rx, a BC348, also has a new xtal cascode converter. We wish old Bill good hunting. 2JH is coming back soon to 144, he has not been too well. 2WJ has been off for a while, what's wrong John? 2HO has now acquired a pair of 8012s for 576 Mc. and hopes to be on soon. 2ANF has been busy. Looks as though DX is fading out for the winter as most signals are weak from South and West. The Northern boys have been heard at S6 to 7. Still coming in when they are on.

Keep a look out for 2ADB at Wahroonga, Sydney, about 300 cycles above whatever frequency you call him on. He has only a walkie talkie, but he is high up. Alf 2CE has his mobile gear permanently installed in his car and has just finished a xtal converter for 144, and is now on the home tx. 2ATO is heard a lot but he seldom calls CQ, I wonder why? He has an excellent signal. 2APQ has as usual been doing a bit on 144. 2AYP threatens to come back on 144 one day.

2FO having a spot of bother with his 144 rig. Tom has a strong signal, his frequencies are 144.12 and 144.6. Carriers have been heard from Dubbo direction, but they were on phone and too weak to identify. 2HE has a good signal and location.

The W.I.A. Award for 100 contacts on 144 Mc. is now an accomplished fact. So go to it boys and gain this Award. 100 cards must be held to gain this Award. The QSL card situation is grim on 144 Mc. Some chaps report that they have no chance of winning the Award because they cannot get verification. Now chaps how about a little co-operation?

Harry 2AJZ has been putting out a nice solid signal of late. 2ARG came up the other night on 144! Maurie 2VN also came up again with a better signal; stability and quality both good for mod. osc. Tom 2IY and Steve 2YR have been on 144 again, glad to hear them on again.

On Sunday, 28th June, a very successful and pleasant field day was held by the V.h.f. Group of the W.I.A. The fox was a mobile unit operated by John 2ANF assisted by the mobile champion, Ezz Griffiths. The fox, after some strategic manouvres, went into hiding some 20 to 30 miles from Sydney. The first official call was given at 10 a.m. when the fox announced that the day was now on. The hounds, comprising of some eight mobile units, started to find the fox, backed by at least six or seven home stations. Bearings were taken and given, to either lead or mislead the hounds, and as usual some funny bearings were given and taken. All seemed to have a very happy day.

The hounds were 2ABZ and 2HO, 2AJZ and 2QZ, 2HL and Cess Cronan, 2OA and 2LG, 2AJR and 2HE plus Niel Tenfold, 2AOA the lone hound, 2KS and 2AGT, 2CL and XYL. Bob and Harry also had their XYLs. In addition, there were a number of walkie talkies around and what a din they made for miles around, the rx's being as good as the tx's! The first hound to arrive was Keith 2AOA, who found the fox at 11.45 a.m. Next in was Leo 2KS at 12.30 p.m. The rest came in in a heap, except for Alf 2CE who sent an SOS which was picked up by Cess Cronan on his walkie talkie. Cess directed Alf in; 2CE was only half a mile away. We were very pleased to see so many turn up, making it another victory in field days. When is the next!

Our congratulations go to 2AOA, it was a good effort. Keith started off early in the a.m. and went to Penrith and from there he hounded the fox who finally was about two miles from Narellan near Cobbitty. Congratulations also to the fox, the hide-out was very good.—2HO.

VICTORIAN V.H.F. GROUP

Another interesting lecture was given at the June V.h.f. Meeting by Kevin 3AMB, the subject: "Hearing Aid Techniques." He had at his disposal units which showed stages in the evolution of the modern hearing aid. The problems encountered with these devices are common to the electronic field generally, with particular emphasis on miniaturisation and economy of battery power. Kevin commenced the lecture with a brief outline of the mechanism of human hearing, together with the types and variations of deafness encountered in individuals. There may be conductive or middle ear deafness, perceptive or inner ear deafness, and some show a hearing loss in only one portion of the audio frequency range, etc. This explains the wide variety of requirements of instruments developed to help those so afflicted, and some care is therefore taken in preliminary tests with people who contemplate using them.

Some idea of normal hearing is shown by the fact that the normal spoken voice should be audible to a person 40 feet way. With this as a reference level, the degree of hearing loss of a person for a given frequency may be fairly accurately determined in decibels.

The main variables that a designer of these aids has to deal with are: (1) Maximum output; (2) Mean amplification; (3) Shape of response curve; (4) Automatic compression; (5) Conversion efficiency, the ratio of acoustic output to battery power consumed. The modern aid consists of a two or three valve audio amplifier, in some cases with a.v.c., and employing subminiature tubes and other small components including crystal microphone and batteries in a typical size of 3¼ x 2⅛ x ¾ inch, and represents the application of many developments in electronics and acoustics. The large number of questions asked showed the interest displayed in the lecture and Kevin was warmly thanked.

V.h.f. Meetings are held on the third Wednesday of each month in the Institute rooms, 191 Queen Street, 6th Floor, at 8 p.m., the next one being on 19th August when Quentin 3IM will give a lecture and demonstration on the Geiger Counter. All are welcome to attend this meeting, so bring along a friend.

On the evening of 18th June, 3LN made a 2 mx mobile excursion to the eastern suburbs. His progress was followed with great interest by those on the band, including 3ADU, 3ED, 3AIK, 3ABA, 3YR, as he negotiated the various hills and depressions on the route followed. The rx speaker served as a microphone while transmitting. Len was running 3w. to the final, line-up: 12AT7 c.o. and dblr., 12AT7 trblr., 12AT7 final. The rx is a converter into a super regen second detector and the antenna two dipoles at right angles as a single bay turnstile.

The 288 Mc. gang have been very quiet this month. 3AFJ loaded the gear into the car, but struck rx trouble after leaving home, hence no contacts. 3AHH building a converter, using 955s. 3ATK should be on within the next few days. No news from 3AAP or 3ED. 3QO can still be heard on odd occasions. 3AAF appears to have deserted the band to concentrate on a tape recorder. 3AFJ planning new rx and tx, tentative idea being 5 tube super and m.o.p.a. using 7193s driving an RK34, should be ready before summer.

With the assistance of his friends in the N.E. Zone, Sid 3CI expects to have a 6 mx 3 over 3 beam 40 ft. high, should get out well. Sid also comes on 2 mx each Sunday at 7.30 p.m. beaming south from Nagambie. A 2 mx hook-up in the N.E. Zone is held each Friday night at 7 p.m. and afterwards about 7.15 they stand by for calls from Melbourne and elsewhere.

As has been announced on several occasions an Award is available to those in VK3 who make 100 or more contacts above 100 Mc. The rules are as follows: (1) Awarded to those VK3 Amateur licencees who submit evidence of having contacted two way, at least 100 other stations on Amateur bands above 100 Mc., dating from 1st Jan., 1946. (2) Confirmations to show the usual QSL information including call sign and location, date contact was made, band used and report. (3) All authorised bands above 100 Mc. and any authorised type of emission may

be used, provided always that the Amateur Regulations are observed. (4) The claimant licencee may have operated anywhere within Victoria and either he or the station worked may have operated mobile, portable or fixed or may have changed address. (5) Only one contact per licencee may be claimed regardless of band used or method or location. (6) Claims to be submitted in writing to Secretary, Vic. Div., together with a legibly written list of the confirmations submitted. The confirmations should be forwarded by registered mail and return registered postage should accompany the application. (7) An attractive certificate to be awarded to each successful applicant. (8) The V.h.f. Group reserves the right to modify the rules if necessary (subject to sanction of Vic. Div. Council). (9) In case of any dispute concerning a claim, the scrutineers' (at present the Chairman and Sec. of V.h.f. Group) decision to be accepted as final.

Overseas Amateur magazines report a period of excellent conditions on 144 and 430 Mc. in the United Kingdom and Northern Europe during the beginning of March, many contacts being possible over relatively long distances with unusually high signal levels. A contact over a distance of 647 miles was made on 144 Mc. between GC3EBK on Guernsey Isl. and OZ2FR in Denmark. On 430 Mc., GW2ADZ worked ON4UV, 350 miles. GW2ADZ also had a cross-band contact with DL3FM, in this case he was transmitting on 144 Mc. and receiving DL3FM's 430 Mc. signal.—3ABA.

SOUTH AUSTRALIA

"DX without ditches," is the v.h.f. motto but I believe that the Pt. Lincoln Hams are soon to change it with signals across the Gulfs, so come on Wally, probe 5VJ and 5LT with one of your three-phase pitch forks; the boys here are waiting for you. Col 5CJ says that after calling in vain for nearly four weeks, he was ear-bashed t'other Monday night at 1900 hours by 5CH, 5MS and 5TW who had suddenly come to life. John 5FD is expected to join the "Limestone Leachers" at any time now—in fact before these notes reach the printers! Claude 5CH is operating from the new QTH, using, I presume, some of his own distillate!

From this source and from Ray 5BT I have information that there is a very good brand of I.F.F. English ZC series filtering into VK5 land from disposal sources at the moderate outlay of five fiddlies. The g.g. is to rip out the r.f. end, use a diode mixer with the 955 as the v.f.o. and leave the i.f. channel on 23 Mc. alone. They are best used on 288 or 576 Mc. Coverage at present is 150-180 Mc.

Bob 5PU is also converting an ASB4 ir to a double conversion rx. This has an i.f. of 55 Mc. with 6AC7s in the line-up. Second converter to be a 6AG7 giving 2nd i.f. of 16 Mc. The front end will use 955 osc. feeding a push-push 6J6 mixer. Ray 5BT has ideas of using the ZC I.F.F. unit—leaving the i.f. stages alone (using VR65s) and re-vamping the front end for two channels—288 and 576 Mc. An EA50 diode for detector in a co-axial tuning with 7193 as the 288 Mc. osc. and RL18 osc. on 576 Mc. Co-axial mixing cavities give much lower noise figure with diodes—silicon diodes give good results but have limited current values and can easily be burnt out. The EA50 v.h.f. diode can take the rap much better. Think of the idea of adding a .f.m. discriminator to these wide band jobs and enjoy good reception from the mod. osc. I am very grateful to you Ray for your interest in these notes.

Harry 5HN has returned to the fold after two years' absence, using a "drain pipe" co-axial atop of the fire station tower. Lionel 5LB is now very active using a super regen and mod. osc. Dougal 5BY biting on 6 mx and asking me for his 2 mx converter. 5LC always good for 6 mx. Pete 5FM has a new ideal location on the 500 ft. level at Mitcham and should be good for some QSOs soon. Ted 5MO back with us and with every opportunity for carrying on v.h.f. and even u.h.f. work should be able to give a lead with his technical ability.

Keith 5MT says his frequency is 288.007 Mc., Clem, so you two can fight that one out! Col 5RO is on 288.28 and in his rx he uses a 7100 Kc. xtal, multiplies 40 times to 284, and feeds out on 4 Mc. 5JW heard calling 5OC on 1 mx and listening on 20 mx—some real cross-band working. 5XA, 5JH, 5KY all active on local skeds. 5DH spending time on portable around the hills with Athol 5LQ also active on 288 Mc.

From Tom 5TL, news not so good. The Murray Valley gang is having mechanical troubles. Harry 5KW did in a pair of 7193s when the crystal holder fell out of the socket, then the xtal followed and finally his 832 didn't bounce off the floor! The 8 Mc. xtal was Tom's—apply to 5BY, he has a "rubber" one that bounces all over the band! The 955 should make a very good grid-dip osc. Tom. Send it down for calibration.

Incidentally it can pay off on these v.h.f's. to have a separate antenna system for tx and rx. It is very difficult to make a feeder work well both ways and generally we make compromises. In reception, an impedance mis-match between the antenna and the line is not nearly as serious as a mis-match between the line and the rx input. High s.w.r. occur on the line, resulting in greater losses in the dielectric and by radiation from the feeder. A mis-match between antenna and line, on the other hand, affects only the efficiency of power transfer. In the case of transmission systems, the situation is reversed. If difficulty is experienced with matching into the rx, place a piece of metal foil around the 300 ohm ribbon and slide it back along the line away from the rx until signals improve.—5XU.

288 Mc. is still the most popular band in this State. Five years ago this band was almost deserted except for one or two stalwarts. About three years ago new stations began to appear nightly and the stage has now been reached when one can turn on the rx any night of the week and hear many stations in QSO. On week-ends distances in the order of 30 to 50 miles are covered by chaps operating portable and QSOing Adelaide stations. (Nobody as yet has broken the existing Australian record of 106 miles.)

Since last April 5RO and 5MT have been experimenting with xtal controlled tx's and rx's, and from the 24th May have been operating consistently on 288.28 and 288.00 respectively using xtal controlled tx's and xtal controlled converters at both ends. 5RO's tx is a BC625A (tx section of SCR522) driving a separate 832 final amp. Last 832 in BC625A tripling from 96 Mc. to 288 Mc. with half wave lines in plate circuit. 100 watts input to final amp. Rx: 7.1 Mc. xtal multiplied 40 times, 6J6 push-push mixer with half wave grid lines. I.f. tuning range is 4-8 Mc. 5MT's tx: BC625A driving a QQC04/15 final amp., last 832 tripling as above to 288 Mc., driving the QQ amp., which has half wave grid and plate lines; grid drive to QQ amp. with 250 volts on BC625A driver is 1.5 Ma., 275v. on driver gives 2.0 Ma. Ig to QQ; plate input to QQC04/15 final amp. is 15 watts. Rx: 7.890 Mc. xtal multiplied 36 times, 6J6 push-push mixer with half wave grid lines. I.f. range 4-8 Mc. 5KC has completed his xtal converter (similar to 5RO's) and has started constructing a xtal tx for the band using a QQC04/15 in the final.

DX NOTES BY VK7RK*

The DX notes in a current issue of one overseas magazine began with this question: "Do we detect a slight glimmer of light through the fog or is it imagination?" and express the opinion that the bands are just a very little better than the corresponding period twelve months ago. Maybe this is right or again maybe it's like the drowning man clutching at the proverbial straw—I'm not argueing.

If the former, loud cheers because we're around the corner and that's as good as one S point to any signal, but if the latter, let's get a handful of that straw as, while that's afloat, so are we and the corner is not all that far away. Maybe it's the mood or something, but this month while no really rare DX has been logged, a goodly bag of calls are listed. Take a look at them and see if they don't add up to a respectable tally of countries in most parts of the globe.

Someone suggested that the bands only seem poor because everyone is waiting for the other fellow to call CQ and no one considers a country DX if he has worked it before.

3.5 Mc. produced nothing that was rare, but on odd occasions the Ws are there and an occasional KH6. 4CW hears the W phone well but to date mine have been all c.w.

7 Mc.: I'll open with some statistics, from **BERS195**. Since the beginning of 1953 Eric has heard on this band only, 99 countries in 33 zones and has sent out 631 reports—this, in just six months' listening, speaks for itself. The pick of this month includes C3BF, CO8AQ, DL2RO/P, EA6AF, JA3AA, JA8AE, KG6FAA, KJ6AX, PY2AC, PY8RT, VE8DE, VK1AF, VQ2DT, SM8ARG, plus over 100 Europeans. The VQ2 and PYs were audible 2130z-2200z. On phone was HP3FL.

3AHH also spent some time on the band with results like Ws*, KW6BB*, ZM6AA*, VE7ALE*, FK8AB*, VK1AF*, KJ6FAA, VR2AS. From the far north, **9YY**, after spending a few days polishing off the W dog-pile, was unfortunate enough to lose the main h.t. tranny and is QRT awaiting a replacement. Subject to the QSLs arriving, Alan has made W.A.S. under one month, which is really stacking them up. Calls listed here seem fairly indicative of the general trend and are, evenings: W, KL7ATZ, KP4DJ, FK8AN, FK8AB, KV4AQ; and around 2100z-2200z: UA9OE, UA3BV, UA4FE, PA0CG, PA0IN, DL1PA, SL6BE, SM5KB, SM6BYX, OH2TM, IT1TKK, PY4FOD.

The calls really summarize the band—early morning there are plenty of European signals although not easy to work, an occasional African, and watch for those PYs for that South American contact. Short skip then until late afternoon when the Ws begin and on a very odd occasion, a weak European appears via the long path, then the Ws, VE, KL7, etc., take over for the evening.

14 Mc. is not quite confined now to only the daylight hours—evening brings a few JA, KA, KG6 stations—not very many and not very strong—but better than 350 Kc. of silence. The Europeans are making their re-appearance on this band also around 2100z-2200z and on occasions are at really good strength. When they go, the Ws via Africa are there until about 0030z. **2AOU** reports South Americans also about this time although have not heard them here. The odd Asian contact is also there. From 0100z onwards the Central Americans take over, followed in turn by the Ws, VE, KL7 and rest, around 0700z with shorter skip KG6, KH6, etc. Between 0600z-0730z quite a few ZS stations are workable giving, under most conditions, all continents audible during some part of the day.

Sources of supply for all this are: **3AHH** with W4WVI/KW6*, FO8AI*, VR2AS*, KL7GI*, ZK1BG*, VP5SC*, VK9GM*, KP4UE, and on phone FO8AI*, XE2HF*. **2AOU** supplies, per favour his new W8JK, Ws, KL7AOU*, HR1BG*, YV5AE*, KH6AWM*, VE7RR*, VE6WB, KW6BB, HK1DS, F7MB, CN8MN, I1BW, VE3QA, CE3CZ, CE2CC, CM9, XE1, KA, KJ6, KG6. All this on phone. **4XJ** worked on c.w. CR9AH*, ZC5VS*. Les is well over the 100 mark now, but the QSLs for DX C.C. are very slow in arriving. Seems to be a common complaint.

7RK in a few short bursts managed VR2AS, FI8AE, VS7LB, VS2CB, VS1FN, C3BF, FK8AB, KC6AA, KL7GI, KB6AY, KW6BI, ZS2BC, DU6RG, CT1JJ, DL9KW, OZ8NJ, PA0OI, PA0GJQ, PA0WF, OH5OP, ON4QX, GW3DCY on c.w. and phone provided XE2KW, KL7AOU, VR4AE, KX6BB, KW6BB. One of the most consistent of the phone gentry seems to be VE7RR who puts in a beautiful signal down here. During the week-end of the W Field Day Contest one had only to push the key, call a directional CQ, call CQ no W, or send a series of vees and it was all the same—back came the Ws.

21 Mc. is low down on the list this month with only two reports. From **3AHH** who lists HP3FL, still consistently strong on phone, and from **4XJ** who has heard KH6s and Ws. The best I can manage is an occasional VK6.

28 Mc.: It had to happen. Comes the day when 4XJ does not have a contact here all month and that day means no calls here this issue.

QSLs seems to have been on the shift in various places, those finishing the shuffle at **9YY** being GI4RY, HG9AO, CE4BX, OH6OA, JA5AA, VS6CM, ZS5KU, LU6DJX, ON4PA, LU1EK, ZS5OH, DL6QV, SM5LL, LU5AQ. At **3AHH**: LA4KD, KZ5FI, AP2R, VQ4DO, OA4ED, FO8AI, HP3FL (21 Mc.), IS1FIC, ZB1BU, W4WVT/KW6. At **2QL**: TG9AG, KG4AG, CX1BQ. At **7RK**: ZS6YW, SL5CB, SM5LL, 5A2CB, GW3FSP (21 Mc.), GD3IBQ. **2AOU**: CE3CZ, KA8RC. During 1953 **BERS195** has received 267 QSLs from 75 countries in 32 zones, some of this month's batch being JA1BC, KA7RC, MB9CA, PY2AHS, SP2SJ, VK1YG, VQ4RF, YI3BZL, ZC6UNJ, ZS5DN, ZS7F.

A couple of interesting **QTHs** are: ZC5VS—Box 136, Sandakan, B., North Borneo; 5A2CB—Forces Broadcasting Station, Benghazi; QSL Manager for Malaya is VS2DV—Box 600, Penang.

A few random jottings gleaned from several sources fasten firstly on the apparent tidying up of the MP4 calls. Current system for the area identification is MP4B— Bahrein, MP4K—Kuwait, MP4Q— Qatar. There are three known to be in Qatar and their QSL address will be C/o. Communications Petroleum Developments of Qatar, by Bahrein, Persian Gulf. Disappointment is being expressed overseas at the absence of QSLs from EA9DC while operating at Ifni. (My disappointment was in not working him.) Could be a second chance however, as from KV4AA comes the news that HZ1ML, now CN8MY plans expeditions to Ifni and Rio De Oro in the not distant future.

Reference last month to the DX Editor of "P.I.M." as being VK2AK should obviously have read VR2AK—sorry.

Not being a phone man I wouldn't know the answer to this one, but why is there so much phone activity immediately below 14200 Kc. and in lots of cases 50 Kc. of silence between 14300 and 14350 Kc.?

* 5 Galvin Street, Launceston, Tasmania.

DX C.C. LISTING

PHONE

Call	No.	Ctr.	Call	No.	Ctr.
VK4HR	12	172	VK4WJ	17	122
VK3BZ	3	163	VK4RW	23	115
VK3EE	10	163	VK4JP	8	114
VK6RU	2	159	VK4DO	20	112
VK3JD	1	155	VK3ATN	26	112
VK4KS	9	152	VK5MS	24	109
VK6KW	4	150	VK4NC	28	109
VK3LN	11	141	VK3HO	25	103
VK4FJ	21	141	VK2ADT	13	102
VK3AWW	14	140	VK2AHA	15	102
VK3JE	7	139	VK6PJ	19	101
VK4WF	16	137	VK3IG	5	100
VK6DD	6	126	VK3GG	18	100
VK4RT	22	124	VK5LC	27	100

C.W.

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	6	207	VK4RF	11	125
VK4HR	8	195	VK3YL	39	125
VK3FH	15	182	VK3YD	27	123
VK4EL	9	172	VK3EK	3	122
VK4FJ	29	165	VK3JI	25	118
VK3CX	26	160	VK3HT	37	117
VK2EO	2	152	VK3PL	38	117
VK3CN	1	151	VK3UM	12	116
VK2GW	16	151	VK7LJ	24	114
VK5RX	23	150	VK4DA	7	113
VK6SA	28	150	VK7LZ	17	112
VK6RU	18	147	VK4RC	13	107
VK4QL	36	146	VK6KW	40	104
VK5BO	33	144	VK2YC	34	103
VK3VW	4	143	VK3APA	14	101
VK2QL	5	142	VK3NC	19	101
VK4DO	20	141	VK2OA	32	101
VK3KB	10	138	VK7RK	22	100
VK3JE	21	137	VK2AEZ	35	100
VK5FH	31	134	VK9XK	41	100
VK3XK	30	128	VK3RJ	42	100

OPEN

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	4	220	VK7LZ	23	116
VK4HR	7	210	VK3VQ	46	116
VK3JE	12	198	VK2ASW	53	116
VK2NS	16	195	VK3JA	43	114
VK6RU	8	193	VK2ADT	14	113
VK4FJ	32	184	VK3HO	38	111
VK3HG	3	181	VK3PG	47	111
VK4EL	10	172	VK3MM	49	111
VK6KW	13	171	VK4RC	21	110
VK2DI	2	170	VK3ZB	34	110
VK3KX	1	167	VK2ZC	25	108
VK4KS	24	167	VK2YL	11	106
VK4DO	15	165	VK3AWN	36	105
VK3AWW	45	150	VK2VN	18	104
VK3LN	29	144	VK4UL	27	104
VK5FL	26	143	VK6PJ	44	104
VK9GW	48	143	VK6PW	50	104
VK4WF	40	141	VK2HZ	17	103
VK3MC	5	139	VK7KB	30	103
VK3OP	19	137	VK2TI	37	103
VK6DD	22	136	VK6DX	42	103
VK3HT	41	135	VK7RK	31	102
VK2ADE	28	133	VK4TY	35	102
VK2AHA	9	128	VK9XK	54	102
VK2AHM	20	125	VK5HI	51	101
VK4RW	52	121	VK2ACX	6	100
VK3JI	33	119	VK2TG	39	100
VK5LC	55	118			

FEDERAL, QSL, and DIVISIONAL NOTES

FEDERAL

W.I.A. MEMBERS ON AMATEUR ADVISORY COMMITTEES

The following members of the W.I.A. are representatives on the Amateur Advisory Committees in each State of the Commonwealth. Other members are Officers of the Wireless Branch of the Postmaster-General's Department in each State of the Commonwealth, and an Amateur chosen by the Department to represent the non-Wireless Institute Amateurs; in addition the Department appoints a number of Observers. The Editorial in this issue of "Amateur Radio" gives details of the Committees' organisation and functions.

New South Wales

Mr. D. Duff	VK2EO
Mr. J. A. Lindsay	VK2AKR
Mr. J. C. Pinnell	VK2ZR
Mr. H. Y. Powell	VK2AYP
Mr. L. H. Taylor	VK2CL
Mr. V. H. Wilson	VK2VW

Victoria

Mr. R. A. C. Anderson	VK3WY
Mr. A. L. Brehaut	VK3SB
Mr. C. R. Gibson	VK3FO
Mr. G. W. Manning	VK3XJ

Queensland

Mr. J. C. Files	VK4JF
Mr. G. Harmer	VK4XW
Mr. H. T. Hewitt	VK4PD
Mr. L. E. H. Mallinson	VK4LM
Mr. J. F. Pickles	VK4FP

South Australia

Mr. H. L. Austin	VK5AW
Mr. L. E. Davies	VK5QI
Mr. J. E. McAllister	VK5JO
Mr. W. W. Parsons	VK5PS
Mr. G. E. Wiencke	VK5GN
Mr.fl L. R. Worrall	VK5WF

Western Australia

Mr. R. H. Campbell	VK6KU
Mr. W. E. Coxon	VK6AG
Mr. C. Hitchins	VK6HC
Mr. H. T. Mulder	VK6MK
Mr. W. Schofield	VK6WS
Mr. W. S. Watson	VK6WW

Tasmania

Mr. T. A. Allen	VK7AL
Mr. R. T. Calvert	VK7RT
Mr. V. F. Dore	VK7JD
Mr. L. W. Edwards	VK7LE
Mr. L. R. Jensen	VK7LJ
Mr. R. D. O'May	VK7OM

Tenure of office as a member of an Amateur Advisory Committee is normally for twelve months, a new body of members being formed in January of each year.

AMENDMENT OF REGULATION 110 IN THE HANDBOOK

After discussions with the Postmaster-General's Department, Wireless Branch, Central Office, an agreement has been reached to amend Regulation 110 of the Handbook for the Guidance of Operators of Amateur Wireless Stations to include the 50 Mc. band.

The Regulation as it stands, reads as follows:

"Except for brief tests or adjustments or in the authorised frequency bands from 144 Mc. upwards, an amateur station licensee must not cause a carrier wave to be emitted from his transmitting equipment unless such wave is subject to intelligible modulation. Prolonged tests or adjustments in the authorised amateur frequency bands below 144 Mc. must be made on an artificial aerial."

This Regulation in effect means that an Amateur Station on 144 Mc. and above can work duplex providing attention is given to Regulation 134 in respect to giving the call sign of the station working and the station being worked. With the addition of "50 Mc." to Regulation 110 interesting cross-band contacts can now be made to assist the v.h.f. experimenters.

TECHNICIAN LICENCES

Work has progressed on the introduction of Technician Licences and further detailed information will be advised shortly. Broadly, the candidate seeking a Technician Licence will sit for the same examination as the A.O.C.P. candidate except that he will not have to sit for morse code. Hence, an A.O.C.P. candidate who fails in his morse code can apply for the issuance of a Technician Licence, thus giving him the opportunity to conduct some experimental transmissions although limited in frequencies and power until such time as he can pass the morse code test for his A.O.C.P. How long he will be given has yet to be decided.

— • • • —

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

The Radio Club of Cuba advise that the address of the QSL Bureau remains as Lealtad No. 660, Habana, Cuba.

A list of the licensed stations in the Netherlands Antilles, PJ2, Zone 9, has come to hand. The list shows 15 stations on Aruba Island and eight on Curacao Island. The QSL Bureau address is PJ2AA, S. J. Heeringa, Box 80, St. Nicolas, Aruba, Netherlands Antilles.

Felix FK8AC, has finally arrived back in Noumea after his extended furlough in France. As he cannot regain possession of his old home until end of July, it is impossible for him to return to the air until September. While passing through Vila, Felix met FU8AB and FU8AC, and acquired a gift of a Halicrafters SX28 with burned out power supply, output transformers and resistors while in Vila. When serviced it will replace his BC348 with which he was not entirely satisfied. On arrival at Noumea he noticed many new buildings and was delighted to observe his antennae still standing. One of his first jobs will be the construction of a new broadcast station for Noumea. While at Tahiti he met FO8AB and FO8AC, the latter being temporarily inactive due to a change of QTH. He did, however, manage to extract from Georges a long overdue QSL for me and also one for VK3ZA.

VK1EM and VK1RR are both still awaiting cards from the printers and will get busy on distributing them as soon as they come to hand.

It is good to hear Jim Widdup, VK9WL, active again from Chadsi, T.N.G., after, as he says, an absence of about 18 moons. Jim, one of the real old school of landline operators, was stationed at Darwin when that town was an important cable repeating centre some 40 years ago. Jim has a new rig running 100 watts powered by a Jap generator diesel driven, and plans to keep active at least each Sunday afternoon. He does not know when he will get South again and expects to leave his bones in the Territory.

The R.E.F. again point out that contacts with Chandernagor FN8AD after 30th April, 1950, are not acceptable for Awards as that location is no longer French territory. They also state that FN8MS was unlicenced and of course unacceptable as is also FK8NQ for the same reason. FI8 contacts prior to September, 1952, are also out as stations there to that date were unlicenced.

George Meaton, VK9GM, of Norfolk Island, gives interesting details of his gear which is made up from bits and pieces salvaged from an A.W.A. Teleradio salvaged from the installation of the wrecked yacht, "Rangi," which met its fate while in transit to Sydney to participate in the Sydney-Hobart yacht race a year or so back. He has the advantage of two 60 foot masts and centre feeds the antenna with co-ax.

— • • • —

NEW SOUTH WALES

A Committee has been appointed by Council to attend to publicity matters of this Division. Included in their duties is the collection of Zone, Group, Suburban and other notes, and to bring to the attention of members matters of importance or general interest. These Divisional Notes, we feel, are a valuable contribution towards maintaining everyday interest in Amateur Radio. It is essential that notes be received not later than the 3rd of each month. Address all notes to—

Publicity Committee, Box 1734, Sydney.

The first general meeting to be held by the incoming Council was held on 26th June, with the President, Mr. J. Corbin, in the chair. Notwithstanding a cold, wet and miserable night, a good roll-up of members enjoyed a pleasant evening. Mr. J. Reed, 2JR, delivered a most interesting lecture on 3.5 Mc. versus 144 Mc. for Field Days. This lecture, illustrated with slides, was delivered in a typical 2JR manner.

The Remembrance Day Contest, which commences at 1800 on 15th August, is worthy of the support of all Amateurs, and we suggest that all members, wherever possible, take part and submit their logs to Box 1734. This is a good Contest—be in it.

Come along to the next meeting of the Division—7.45 p.m. on **28th August.**

The Divisional Council has lost the services of two of its members, 2EO and 2XU. The loss of these two very hardworking members is a great blow, but both have other commitments that rightly have first call on their time. Their resignations gives opportunities to others with time to, in their turn, serve the Division. This is the reason these two are standing down, we hope, temporarily. The Division thanks them both for all they have done, wish them every success and hope they will be back on some future Councils of VK2. Bill Lewis, 2YB (ex-6YB), who in radio goes back to the 20's, and a member of the Institute of long standing, takes one of the vacant positions. The other has yet to be filled.

VKs 2LQ, 2MI, 2AWN, 2ASW, 2XU, 2YB, 2YC and Mr. and Mrs. 2ARW came to 2YC's to get out the Monthly Bulletin. This made it easy work and enabled a good deal of the Institute affairs to be discussed. This is to be a constant night, so you are invited to come along to "help and talk." See you in August—ring MU 1092 for the correct Thursday.

HUNTER BRANCH

The June meeting of the Hunter Branch was held on Friday night, 12/6/53, at Tighes Hill Technical College with the President, John Clarke, 2DZ, in the chair. The lecturer for the evening was Ken Greenhalgh, 2KG, lecturing on Audio Amplifiers. This lecture was well received as was proved by the interest shown and questions asked.

The v.h.f. bands have become increasingly popular over the last month, beginning with Ron 2ASJ obtaining tx and rx for 144 Mc. Ron is using SCR522 as his tx. Neil 2XY has now obtained an SCR522 which he has running on 144 Mc. and puts out an f.b. signal. Leo 2QB has 144 Mc. gear, his tx is a mod. osc. Les 2AOR has mod. osc. and rx and should be on 144 Mc. shortly. Max 2OT reports gear almost ready for 144 Mc. transmissions. Bill 2PJ has mod. osc. and has converted disposal rx ZC133 for 144 Mc. reception. Bill 2XT has ASV rx on 144 Mc., but has SCR522 tx and rx which he hopes to put on the band when time permits.

Fred 2AGY, Jim 2ZC and Dave 2BZ also active on 144 Mc. Bill 2AXM selling up his gear prior to shifting QTH to VK4 later in the year. Lionel 4DR visited Bill recently during the time the ship on which he is radio operator was in port. Norm 2ANA pops up occasionally on 7 Mc., let's hear you on more often, Norm. Les 2AOR made brief visit to VK4 during month to visit Noel 4PQ in Bell; he also met Eric 4XN in Dalby, Cedric 4PT and Allen 2ASO in Toowoomba and "Pedro" 4PR in Brisbane.

Don't forget the August meeting to be held at Tighes Hill Technical College on **Friday, 14th August.**

Hunter Branch Winter Social

One of the main events of the month was the Social held by the Hunter Branch. A good number attended, 58 being present, including the Divisional President and his wife, Mr. and Mrs. Jim Corbin. Dancing and games were the order of the day until about 9 p.m. when it was announced that the Hunter Branch Ballet would present "In a Persian Market." When Ernie 2FP as the Sultan, Harold 2AHA and George 2AGD as Sentinels and Associate Frank Stubbs as the Sultan's aide de camp, all suitably arrayed, entered, the audience knew they were in for something. To the strains of sweet music, the Ballet "girls" danced in and performed a "graceful" dance which really brought down the house. With short cyclamen paper skirts, white petticoats and frilly white undies, plus paper brassieres and hats, and decked out in beads, rings, gee-gaws and what have you, these "girls" had to be seen to be believed. Fears were held that Ron 2ASJ would laugh himself into hysterics, but am happy to report that such was not the case.

The Ballet "girls" were Johnny 2DZ, Varley 2SF, Ron Dawson, Max 2OT, Jim 2ZC, and Leo 2AOR. As it was "Phoebe" Clarke's (2DZ) birthday, a suitable present of a doll was made by the Sultan. Later in the evening Johnny 2DZ was presented with a large cardboard box with the best wishes of the Hunter Branch, and upon grasping same the bottom flew open releasing a live rooster. So Johnny can now say that he has been given the "bird" in no uncertain manner. After more games and dancing, the Social came to a successful conclusion. Thanks are due to Mrs. Clarke and all ladies

who assisted in the making of the dresses for the Ballet and to all persons who assisted in making this Social a great success.

The aim of the Social was to bring members of the Hunter Branch and their XYLs together and so strengthen still more the community spirit and team work of the Hunter Branch. This Social certainly went far in achieving this aim.

There is no doubt that Mrs. 2YC must be interested in the W.I.A. as the following week we find the President 350 miles from home attending the South-Western Get-Together at Coolamon. The boys gave Jim a good hour's "ear-bashing" on the Saturday night, just so they would have "some of an idea" of what goes in the W.I.A. to put some really good queries on the Sunday afternoon. Mostly they wanted to know how he gets away so often. They don't seem to believe he just says, "must go to Coolamon on Sunday for the W.I.A.," and the rest is easy—"sometimes." The whole week-end was a credit to all members of the South-West Zone as almost without exception those who did not attend, sent an apology. In some cases, quite a long letter with suggestions was received. The Dubbo gang wanted 2YC to come up to Dubbo the following week-end, but even 2YC wasn't game to try that one, so soon, on the YF.

SOUTH WESTERN ZONE

There was great activity in Coolamon on the 4th and 5th July when a Zone gathering was held with a view to holding a Convention in the South Western Zone later in the year. There was a really good attendance of Hams and Associate members, including Stewart 2PL, Griffith; Don 2RS, Bert 2AEM, Art 2EU, Albury; Geoff 2BQ, Ross 2PN, Tumut; Alf 2BW, Stan 2AID, Wagga; Jim 2AJO and Lyn 2AQE, Coolamon, and last but not least, our worthy President and Federal Councillor, Jim Corbin, 2YC. Also present were Mrs. 2AEM and Mrs. 2EU and a very active gang of Associates, Ron Braby, Brian Jones, Bruce Fleck, Ted Druitt, George Harriman (all of Griffith) and Bill Jenner, of Wagga.

Apologies were received from 3JK, 3HP, 3AWK, 3YV, 2QD, 2ANQ, 2MF, 2OW, 2APP, 2OJ, 2RH, 2WH and 2AMV together with the R.I. Mr. Butler and Mr. Jack McPhee, all of whom intimated their intention to attend when the meeting was first taking shape.

After much discussion among the assembled gang, it was enthusiastically agreed by all that a Zone Convention of two days' duration be held at Wagga later in the year. An organising committee consisting of 2BW, 2AID, 2PN, 2PL, 2RS and 2AJO, with power to add to its members, is to arrange the details and decide on the exact date.

At the conclusion of the meeting, Ross 2PN tendered on behalf of the assembled gathering a vote of thanks to the President, Jim 2YC, for making the long trip to Coolamon and for his explanations to the questions asked by the assembled meeting.

Congratulations to Lyn 2AQE, now active on 80, 40 and 2 mx. Lyn 2BQ and 2PN are very active on 144, 2RS also has a very nice set-up on 144 with 829 p.a. Don's rig was examined and much admired by all the Coolamon gathering. I can see the Associates really getting into the c.w. and theory now, so that they can get on the air. Build rigs like Don's and QSO all the Hams they met at Coolamon.

COALFIELDS AND LAKES ZONE

News of the month! 2PZ has made it at last! Chris has fired up on 80 mx and has been renewing acquaintances. The rig is a revamped AT5, the antenna system defies description, but appears to be getting out. It would appear that 2YL's gear still works as Harry has been heard tickling the old bug again. 2ADT is still trying to find a band where there are any signals to work. (Please don't mention 3.5). The experts still claim we have not reached the bottom. With the winter lull in v.h.f. activity, 2ANU has not been heard as much as usual, but bobs up for the occasional QSO on 6 or 2 mx.

2VU keeps close to the fire these nights but claims to be doing some re-building while keeping warm. 2RU had the misfortune to have his beam come adrift from its driving mechanism and now has it fixed North. Rumour has it that Major is busy on a "secret weapon" so results will be awaited. 2AEZ is a constant occupant of the 80 mx band, but was reported to be in conference with 2AMU over gear for 2 mx. The glow on the southern horizon which appeared recently was due, I am told, to fireworks in 2KR's shack. Trust you have things straightened out again, Ces.

VICTORIA

The July meeting took the form of a Tender Night, again under the guidance of 3LN. Not as many pieces as last time, but enough to keep Len and his assistants busy. The roll-up was not as good as usual, only about 60 being present.

Jack Vertigan spoke on the insurance policy advertised in "A.R.," pointing out the advantages of taking out this policy. For the sake of about a pound, the insurance is well worth having. It covers almost everything except fair wear and tear.

The number of unclaimed QSL Cards is causing concern and it would be very much appreciated if those who have not claimed Cards recently would either call at the rooms or write and ascertain if there is any there for them. Some of the Cards have been on hand since 1945. There is also a number of Cards held for non-members including 3VJ, 3GX, 3KY, 3ART and 3ABO. If you know any of these chaps, please pass the info along to them.

The only new member for the month is Associate Arthur R. Crouch, of Dunolly. Welcome Arthur, and don't forget the usual advice.

The next State Convention is to be held at Benalla on the 28th and 29th November. If you intend going along, please advise the zone secretary, so that accommodation can be arranged. Agenda items are wanted for this occasion. If you are able to help in this regard, please forward your suggestions to either Col Gibson or else to 191 Queen Street.

As for what everybody is doing, I would not know, but judging from the absence of signals on all bands, everybody must be listening to cricket descriptions one week and catching up on lost sleep the next.

I notice the R.D. Contest clashes with a Test Match, so please chaps, take sufficient time off to exchange a few serial numbers.

I was going to leave our portly friend in VK5 alone this month, but a paragraph in the evening paper several nights back caught my eye. Mr. E. W. Tipping agrees with me that Adelaide is NOT a city of churches, and goes on to say there is a pub on nearly every corner. He is apparently overlooking those in between. To the best of my knowledge, Mr. Tipping does not have a call sign and does not read these notes, but even so Sir, I raise my hat to you. To the portly gent, I would say, "Why does a City of virture require a government hostel?"

Old man weather turned on a good day for the Tx Hunt on 12th July. The tx was excellently hidden among some bushes on a reserve off Dandenong Road at Noble Park. First in was 3NZ, R. Bowen was second, and 3VZ third. **The next Hunt will be held on 23rd August.** Note the following alteration of times: Assemble at the Flagstaff Gardens at the corner of Williams and Franklin Streets at 1.45 p.m. The signal will come on the air at **2.30 p.m.** It is hoped that by starting half an hour later it will enable more to participate in the Hunt.

EASTERN ZONE

Things are still very quiet around the zone. Ron 3PR is back on with an S9 signal once again; you know of course that Ron has been re-building the rig in the new house. Arthur 3ABF has changed his place of employment and now keeps the local A.B.C. station on the air. Arthur's influence seems to be stirring the other boys down there into activity as Graham 3GO and Howard 3VG are talking very seriously about 2 mx. Keith 3SS and Leo 3SG are also very keen about 2 mx, so that looks like being the coming band in the zone. It should be very suitable for mobile operations and could really come into its own should it ever be necessary to carry out emergency operations again.

The monthly meeting of the local sub-branch was held at the home of Ossie 3AHK and a most enjoyable time was had by all. Preliminary plans were made for the Zone Convention which is to be held at Omeo in November, after which Cliff Manning, 3CJ, who is one of the Radio Inspectors, gave a most interesting, informative and entertaining talk. Cliff spoke at length on radio interference and how to track it down. Mingled throughout his talk were many reminiscences, some of which were of a very amusing nature. One very interesting fact that Cliff brought to light was that in four years' experience as a Radio Inspector he had only handled two cases of broadcast listeners being interfered with by Hams. This, I think, must be to the credit of Ham Radio in general.

Thanking Cliff for his presence, Keith 3SS said that he thought such gestures, as well as being of great value to those present, helped to create closer understanding between the Government Department and Ham Radio. A delightful supper was served by Mrs. Kellas and rounded off a very successful evening. That is the lot for now chaps, I'll see you on 2 mx.

NORTH EASTERN ZONE

Murray 3HZ is still busy in various fields, but finds a little time for 6 mx. Les 3ALE is using the cold weather to good advantage, studying in front of the fire, and when last heard of Peter 3APF was burning midnight oil in his professional field. Alex 3AT is still re-building and Johnny 3ACK is still keeping very quiet. Keith 3JC is competing with Ken 3KR in the DX field of 20 mx, the former has 40, out of 65 countries contacted on phone, confirmed, and the latter 103, out of 121 countries contacted on c.w. post-war, confirmed. Alan 3UI is planning a new and improved rig for v.h.f. next season, while Henry 3HP is interested in the possibilities of v.h.f. for mobile work.

Tom 3TS has not given any details of his activities lately, and 3GD in Stanhope is quiet. 3CO and family had hoped to entertain Doug. 3IJ and family to tea a few weeks ago. Congratulations to Rex 3UR and XYL on a new harmonic. Col 3WQ is keeping his Associates interested, he had Vern on hand after the last hook-up. Syd 3CI was entertaining David 3DY the same day. Jim 3JK and Howard 3YV have not been heard from lately, but Jack 3PF was marking lambs at last information.

SOUTH WESTERN ZONE

The next Zone Convention will be held at Colac on 7th and 8th of November. Anyone intending to be present are asked to contact 3AKC or 3AGV.

Well chaps, plenty of notes this month. The hook-up at 1000 hours every Sunday has greatly improved. June 21 there were eight starters, June 28, 11 entries—this is a zone record; July 5, three new comers in 5JX, 3EQ and 3TW. Our thanks to John 3AGD for his good work, don't let him down now we have the best hook-up in the State (other zones please note). Kevin 3AKR now has his play-back permit and is being kept busy, also invested in a lathe and "botting" old pistons to turn up wheels and whatnots for a tape recorder—swipes Dad's at the present.

Fred 3ALG has his tranny rewound and is back on QRO; other Geelong Hams active include 3WT, 3AEH, 3AKE. 3AWZ is on 144 Mc. and Ed 3AKE re-building 144 Mc. rig, heard he is making a good job this time (bet it does not work so well). Don 3PO wants 288 Mc. contacts, how about it Peter, Don also revamping gear. Gordon 3AGV getting rich quick chasing specks of valuable metal in creeks around Colac; can you see Gordon as a prospector? 3NA got the bug again, and Jack 3JA back again, also Les 3DX after some years, heard him on c.w. knocking over a couple of Ws late at night. 3ANQ chasing b.c.i. Hope to see you all at Colac.

GEELONG AMATEUR RADIO CLUB

The month of June proved to be a successful month for the members of the Club. A syllabus for the next 12 months has been drawn up. The members paid a visit to Arch 3BW, of Portarlington, and an enjoyable evening was spent by all. Arch demonstrated his AR88 rx and his gear operates from 80 to 2 mx. An item of interest was the G8PO beam mounted on a windmill tower. A nice supper was served by Mrs. Woolnough prior to the boys returning to Geelong. The following meeting was well attended, being the Annual General Meeting. The business for the evening was the election of new officers.

BALLARAT & DISTRICT RADIO SOCIETY

During the month of May a trip was made to the Ballan transmitting station, the officer in charge conducting the members through and explaining the working of the station and its associated equipment. Fortunately the weather was not at its worst, as the tour of inspection of the antennae is not meant to be undertaken during the rough weather without the aid of "waders."

The June meeting was very brief so as to enable Don 3PO to explain the workings of the teletype. This amazing piece of mechanism holds no secrets for Don and he had a very interested audience. The lateness of the hour forced him to terminate the lecture, after a lively question time.

The July meeting took the form of "Questions and Answers," ably presided over by Keith 3IV and assisted by Alf 3AL. Their knowledge being helpful with those sticky questions which always seem to find their way in.

— • • • —

QUEENSLAND

The June meeting showed a slight improvement in the usual attendance. Amongst those whose faces we haven't seen for some time was John 4RT, Les 4NV, Fred 4IN, Pat 4KB. It was a pleasure to see some of the old timers again, though there are still far too many members missing from our meetings.

Paul 4VS resigned his job as Secretary owing to pressure of business. A vote of thanks for his effort was carried by acclamation. Jim 4OB has accepted this responsibility and also that of Station Manager, till such time as the Army catches up with him for his camp. The position is still open for anyone who would like to be the Secretary. Thanks for your help Jim.

A very lively discussion arose around the subject of incoming QSL cards for non-members. Seems to be a question of morals involved, we to pass the cards on, and non-members to contribute to our organisation for handling, otherwise they are accepting the privileges of the organisation gratis which means time and money on their behalf without their support. What say a drive among these chaps to gather them into the Division and their and our worries are solved.

The picnic and low power outing to the Pine was very successful with some thirty members, visitors, and their families being present. In typical Queensland sunshine and rustic setting, each and everyone had an enjoyable day. It has been requested we hold a similar function in the near future. Those of us who were missing, missed a good time.

John 4RT at the controls of the tx was the only one who made a contact, though John 4FT struggled hard with one-tenth of a watt to try and contact a VK2 after a lot of fun trying to get the rig going.

The sporting events were popular with Jack 4JF winning the egg and spoon race. The tug-o-war between phone and c.w. men was indecisive, honours being even. The children's events proved as exciting to the fond parents as to the children themselves. The only mar to the day was the slowness in getting things under way, and our relations officer in not seeing everyone knew everyone. We would like to see more of you and your portable rigs at the next one chaps.

The Student Classes are going along well with some dozen or so members tackling the subjects well, though maths. have a few worried, but plenty of swot should overcome this. There is still room for a few more students and budding Amateurs, so with the new age limit we should be able to interest a few more to this valuable side of our activities.

The VK4 Contest was won by Noel 4PQ, of Bell, so this year's honours go to the country. John 4FT was second, with 4CK third. This event is proving popular and movement is afoot to introduce a perpetual trophy, which should make it an interesting and competitive event. While on the subject of Contests, by the time these notes reach us we should have our rigs stoked up and waiting for the R.D. Contest. We want your logs for at least the minimum number of contacts, and in on time, to win the trophy for this State. We can do it with your full support and those logs. It was very close last year, the lack of your log let us down.

My listening time this month has been very brief so haven't a clue to what's been happening on the bands. I do know Bill 4YA has been as happy as the proverbial dog and street full of lamp posts with the reports he has been getting with the new beam. Dave Evans 2AYE has been a regular visitor around Brisbane and hopes to operate soon under the call sign of 2AYE/MM aboard the "Manoora."

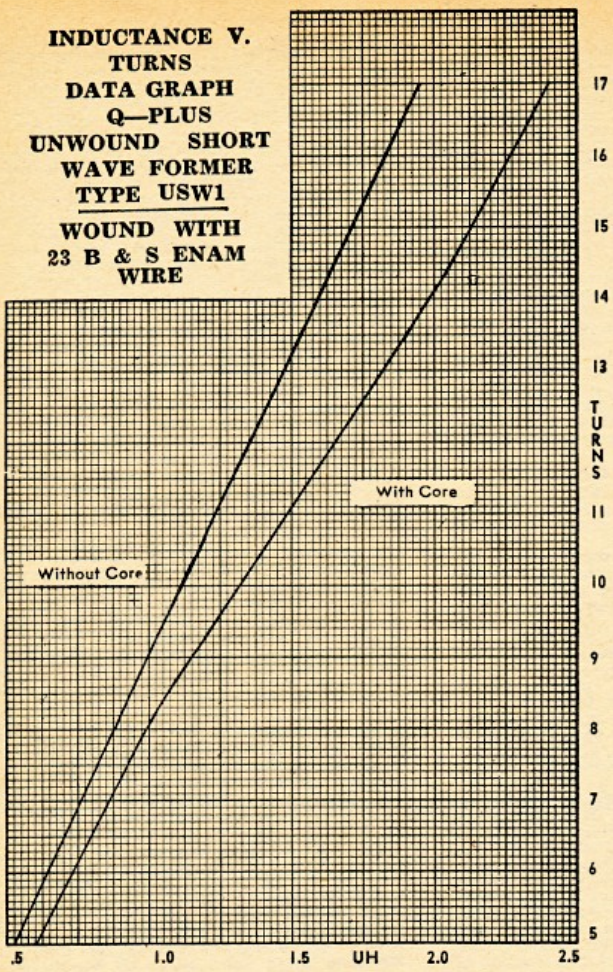
Heard Al 4PA putting out a flea power signal and Frank 4ZM improving his tone a bit. Keith 4KS is off the air building a "sooper dooper" rx. John 4FT, Clive 4CC, Aussie 4TN, and Jim 4OB have been heard, with a peep occasionally from 4TT, nattering around the band. My Ipswich spy has let me down this month. Maybe with the cold weather the boys up that way have gone into hibernation or is it the power conditions keeping them quite?

In passing, a thought for the month: Attend your meetings, support your Division, and try for at least one new member.

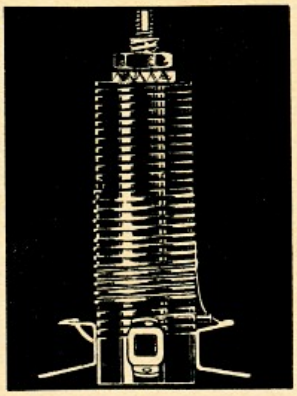
NOTES FROM THE NORTH

There is still a dearth of information from these parts, but several of the local lads have made appearances and so things have not been so hard after all. One of the highlights of the month was the visit of Dave 2AYE; says he is soon installing a portable or mobile rig on the ship. Harry 4XH has a very f.b. signal and operates under difficulties at a QTH where auto QRM is very fierce, but still manages to get a few on 21 Mc. phone; says he likes from 21 Mc. up in freq., which the writer is in full agreement! 4FA is almost ready for operation and so don't be too long OM, we want some activity up here, lots of DX and nice QSOs when you do commence.

Harry 4HV has given 14 Mc. away due to the poor conditions and is finding 7 Mc. to his liking, and getting around in fine style. Joe 4JH has a real antenna farm and when in QSO with him on 21 Mc. recently, he was putting in a fine signal and is contemplating even an 144 Mc. beam; he has 14, 21 28 and 50 Mc. arrays now, and has just finished new tower; he also likes 21 Mc. and higher.



"Q-Plus" Unwound S.W. Former—Type USW1



An unshielded polystyrene former with high frequency iron core, terminals and mounting.

SIZE. O/all height 2in (without core protruding). Above chassis height 1¾in.

FORMER DETAILS—Polystyrene. Grooved 16 turns per inch.

MOUNTING—3/16in hole.

INDUCTANCE AVAILABLE—See graph—using 23 B & S enamel wire 2.375 uh MAX. NOTE. If core is left in, a minimum value between the two graphs will be obtained. Heavier wire for the lower values is recommended and will not materially affect available inductance.

23 B & S is optimum size for 16 turns.

R. W. Steane & Co. Pty. Ltd., Auburn, Vic.

SUBJECT TO CHANGE WITHOUT NOTICE

"Here's your spare part from GERARD & GOODMAN"

Harold Ham lives on top of a hill miles away from anywhere. Mighty good for radio, but not so good for radio parts—that is until his postman told him about Gerard & Goodman's mail order service. Delighted, Harold now gets all his parts post haste—the right parts from Australia's biggest range. Take your pick of Australia's finest parts through Gerard & Goodman's mail order service, too. Write for full details and order forms, or list the parts you need (mark if C.O.D. or remittance enclosed) and address your envelope Department R.1, Gerard & Goodman Ltd., 192 Rundle Street, Adelaide.

GERARD & GOODMAN LIMITED

192 RUNDLE STREET, ADELAIDE. Phone: W 1541

Eddie 4WH heard QSO on 14 Mc. on a dead band recently having a mighty QSO with one of the Brisbane lads, 4HM; Eddie tells me the G8PO antenna of his still does a good job, but that the sigs from DX don't seem to come the way you'd expect 'em to these days! Edgar 4GF made one of his infrequent appearances recently and was working a 3-way with Bob 4RW and Eddie 4WH, why not make a habit of it Ed? Well that's the lot for this month, your scribe has been spending his time on 7 and 14 Mc. c.w. and 21 and 28 Mc. phone, with fair success, but very QRL at new QTH in town.—Eric 4EL.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual at the Club Rooms to a very representative gathering of the local boys and several visitors, in fact the gathering of so many members, considering that it was raining hard outside, surprised everybody. The guest speaker was Dr. Jellenik, Reader in Chemistry at the Adelaide University, and his subject was "Ultra-Sonics and Super-Sonics." In fairness to Dr. Jellenik I must say that when he first started to talk I became very worried, I gazed at the sea of faces down in the body of the room, and from the stunned look on most of the faces, I knew we were in for a really technical, technical night. With great presence of mind I formed my features into an intelligent set look, and began to compose a vote of thanks in my mind that would not sound too hypocritical. Just how wrong the audience and I really were can never be explained, the further the lecturer went, the more interesting the talk became, until toward the end of the talk he had them all in the palm of his hand. Without a doubt it was one of the most interesting talks that we have ever had, and I think that Dr. Jellenik was more than surprised at the number and the sensible nature of the questions that were asked at the conclusion. This type of lecture, the subject of which only remotely touches on radio, once again proves that it is all to the good now and again to forget that we are primarily a radio organisation, and also it proves that providing the lecturer knows his subject, as the Doctor certainly did, then any subject can be made of more than passing interest. The vote of thanks was ably proposed by John 5KX and the enthusiastic acclamation by the audience definitely indicated how much they had enjoyed the talk.

Very little business was taken up at the meeting, and after the Federal Councillor had briefly explained the new radio insurance policy to those present, the meeting closed at the record time of 9.30 p.m. Don't let this fool you, however, very few went home, and to put it plainly, the meeting was unofficially continued until nearly 11 p.m. In VK5 just because a meeting is closed it does not mean that it is over, no Sir, everybody goes from group to group and joins in the general rag-chew and a grand time is had by all. The President goes from buddy to buddy exchanging a pleasant greeting and usually finishes up with the promise of various bits and pieces to the eternal envy of one Doc 5MD.

Rumour has it that Ralph 5TR recently received a letter from a certain consultation telling him that he had won £4,186. Great was the rejoicing thereof until it was discovered that it was a typist's error and should have read £4/18/6. Need I carry on with the harrowing tale. The only one who seemed to find it at all funny was Ross 5LW, but then Ralph's troubles have always been a source of amusement to Ross and vice-versa, or vive-voce, or nolle-prosque, or something.

I notice that my public nuisance number one in VK3 has once again descended to personalities and to make it worse has apparently recruited the scribe for VK4. "Only humouring him, indeed," if it was not for the fact that this new straight-jacket restricts the free movement of my arms I would tell him a thing or two. Of course Doc was intensely pleased to read their insinuations and can only say, "I told you so, I told you so." Oh if only I could get out of this cell!!

I hear by the grapevine that the "Dear Editor," Tom 3HX, is at the moment of writing in hospital, and all his friends in VK5 wish him the best and hope that he will soon be out to wield with his usual vigour, the red pencil. That's the sort of joker I am, turn the other cheek no matter what it costs. Seriously though Tom, here's hoping that you are soon about again. No kidding!!

UPPER MURRAY AREAS

The usual monthly meeting of the Upper Murray boys was held at the QTH of Murray 5CF and those present included 5RE, 5KW, 5MA, 5TL, 5XO and of course 5CF. Associate member, Wolfgang Wuttke, was also much in evidence, minus his plaster cast which had been around his right arm for some time since his accident at work two months ago. An apology was received from 5BC saying that he regretted his inability to attend the meeting although he was with them in spirit. I presume that matters of a technical nature were discussed but my correspondent was so overcome with emotion at the fact that Alec 5XO brought along to the meeting some radio gear to give away, that he forgot any further mention of the proceedings of the meeting.

It appears that Alec had discovered in his travels some radio gear which was lying around as so much junk, and had snapped up same for the benefit of the meeting. The names of all present were immediately put in a hat and Hobby 5RE was the lucky recipient of a FS6 rx and the remaining six rx's, two hundred valves, etc. etc. plus a couple of motor bikes and three Customline Fords went to the remaining lucky names in the hat. I might have exaggerated a little but I was that annoyed to see that my name never went into the hat that my apoplexy clouded my imagination!!

My correspondent, may all his fowls kick the bucket, had the audacity to ask me if I wished that I had been present to acquire some of these spare bits. I treat the question with ignore, in fact I do not even answer, mainly because I am having a couple of apoplectic fits in push-pull parallel with a consequent lowering of the internal specific gravity After all, what could I do with a secondhand piece of radio gear? Don't answer that, the mere suggestion gives me a feeling of pain! Mrs. 5CF did the honours at the close of the meeting as only XYLs can do, and the meeting all left for home much more heavily laden than when they came and all vowing that Alec was a gift from the Gods. If it were not for the fact that the Dear Editor is at the moment reaching for the famed red pencil, I would put on paper my opinion of the type of person who leaves my name out of a hat, but if there is anything in thought transference then the Upper Murray gang are all squeezed inside their rightful place of abode!!

5RE is a man of many parts, as I think I have said many times before, and as President of the Renmark Gliding Club, Hobby will take the air literally as well as vocally. The club has taken delivery of the glider and there is to be an official christening party, and whilst nothing definite is announced as to air to ground experiments at this juncture, I would hazard a guess that Hobby couldn't resist the opportunity.

5TL is becoming a real publicity hound these days and was mentioned in the local news as being in league with a local medico in an attempt to organise a blood transfusion group. Tom is well experienced in transfusions as he had to be prepared to give "Rattling Salvation" a couple of transfusions after each Council meeting before it would even put-put-put.

NORTHERN AREAS

The boys from the North held another meeting this month and a very pleasant evening was had by all. They find it rather hard to get together up there because of the varied occupations of the gang and somehow or other they never seem to be able to hold their meetings on the same night as the city boys do, although that was the original intention when the idea of holding a monthly meeting was first mooted. One of the suggestions to arise from this month's meeting was that consideration be given by Council to the recording of the technical lectures given at the Divisional meetings and then forward the recording to the Northern area where the boys could play back the lecture at their next meeting. This is not a new suggestion as this matter bobs up every now and then, and so far the Council has never been able to come to any satisfactory solution, but strangely enough Hal 5AW has been giving the matter more than usual consideration and I think that he is nearer to a solution than we have ever been before. Anyway the matter will be discussed at length at the next Council meeting and I can assure everybody that if there is a way to record the lectures on tape for the use of the country boys, then Council will do all in its power to help the gang. As I have said repeatedly in these notes, don't hesitate to bring up any matter, and if we can help, we sure will.

5TJ is sporting a new utility and Jim is making whip antennae and is finding that his Type 3 is now coming into its own from a portable viewpoint. He has been active on 40 and 80 mx and contacted HP3FL on 40 a couple of times although he has been busy since the rains with seeding. 5FB is getting on 20 but with difficulty, John has erected a twin element beam on top of the roof ready for a tryout. 5XL has been trying to stage a comeback by getting some 6 mx gear to "perk" on the air. Lance has also made a new feedline to the beam and is putting a push-pull final on his present rig. He is experimenting with whip antennae and hopes to have a good mobile rig installed in his car using an xtal controlled converter for 40 and 80 mx.

SOUTH EAST AREAS

I am in a bit of a quandary this month regarding the news from the S.E. boys because the v.h.f. correspondent for VK5 has been rather threatening in his manner towards me and has openly stated that if I continue to make mention of any v.h.f. doings in my notes, then he will take the necessary steps to see that I am rubbed out, or my notes are rubbed out, or something is rubbed out. I am not quite sure just what he said to me, as I was hurrying away at the time, but I will try and avoid any direct mention of v.h.f. doings.

5CH is gradually getting the new home into shape and Claude has managed to find time to spare for a little activity on a certain band that must remain nameless with me. 5TW is at last getting results from his gear that works on a band that must remain . . . Tom admits that it is only a matter of sticking to it for all the gremlins to throw in the towel. 5MS is more than pleased with the results from his new 20 mx beam and Stuart will be well to the fore should any DX station even as much as switch on a carrier. He also has been heard on a band that must . . . 5FD has been fairly quiet, but if Dame Rumour can be believed then John will soon be heard on a band that . . .

5KU is still snaring an odd new country now and again, and the new gliders are nearly completely re-built, which is only another way of saying that should there be any prolonged fine weather, then Erg will be up in the air. He is apparently the only S.E. station that is not interested in a certain band . . . For which I offer up a prayer of thanks. 5JA has completely vanished into thin air and could be up to his neck in dishes, working all the DX, or John could be even active on a band . . . 5CJ has had a few contacts on 40 mx, and Col also has been active on a band that must remain nameless with me. Well now I ask you. Have I played the game or have I played the game. Could anybody get even an idea from the above notes that the boys from the S.E. are more interested in 2 mx than in any other band. I haven't even mentioned 2 mx, Gordon!

I can't finish these notes for this month without asking you a really technical question. Look out here it comes! What has two wings

and eighteen yellow noses? The answer? Simple. A Chinese football team!! What's that? You heard it differently. Maybe, but they don't call me Pansy the virtuous in VK5 for nothing!

— • • • —

WESTERN AUSTRALIA

Winter conditions seem to react differently to members. Some move to warmer climes and give Ham Radio a break. There are those whose personal comfort exceeds their enthusiasm for DX accompanied by cold feet and hands. The active member adapts himself to the new conditions, installs a radiator and finds more suitable frequency bands for State working, particularly the 80 mx, in the absence of elusive DX.

To a close observer, the seasons definitely have their influence on the habits of the Amateur. Conditions at the moment seem to follow the usual winter set-up. 80 mx, good for all intrastate, and at night for a couple of thousand miles. Better antennae systems and directive beams would, no doubt, convert the 80 mx band into a DX one. 40 mx, the door by which most Amateurs enter the DX field, is not worth the effort of wee sma' hours, and a move is made to 20 mx. Here one finds conditions good and bad; good for a couple of hours out of the 24, and then a wipe off for the other 22 hours. Let's look at 10 mx, and when it is clear that no signals are heard, one is left wondering if conditions account for it, or that everyone else believes there can be no signals, and quickly moves to 6 mx. Ah! Here is some activity worthwhile; by this time he has come to the conclusion that the game is not worth the candle (or midnight oil), and gives it away for a while. There are at present quite a lot of Amateurs who are in this position.

The forthcoming R.D. Contest is an event that should not catch members napping, and as each year interest increases, every effort should be made to support the Division in a united effort to make the results the best yet.

As a curtain raiser for the R.D. Contest, this Division stages what is termed a 40 mx scramble. An hour before lunch, and an hour after, is devoted to a contact making effort truthfully described as a "scramble." It is confined to VK6 only, and an exchange of RST, together with the call signs and time, occupies only a matter of seconds. The competition is used by the Radio Society as a listeners' competition.

It seems evident that a comprehensive emergency network will be established in W.A., starting with 144 Mc. for the city and suburban area at least.

— • • • —

TASMANIA

The July meeting was held at the Club Rooms on the first day of the month and in spite of the bleak weather, there was a very good roll up. Business for the evening included the election of Mr. G. Johnson and Mr. S. Patterson to Associate and Full Membership respectively, and a warm welcome is extended to both. Other business for the evening was disposed of in very short time and a general ragchew followed until the lecturer arrived at about 9.15 p.m. During this time, Joe 7BJ did a brisk business with the library which was open for the first time and which promises to develop into a very fine set-up, a worthy product of the usual 7BJ thoroughness.

And now for the chance of a lifetime to blow on my own trumpet. Lecture for the evening on "Vacuum Tube Voltmeters" turned out to be a magnificent presentation of the subject given in a masterly manner by Mr. Len Edwards, 7LE. In spite of his having to climb the spiked iron gates at the street entrance to gain admission to the meeting, the lecturer never faltered and seldom in the history of the Division have such applause and shouts of appreciation been heard!! My apologies gentlemen, but such an opportunity—well! (Thought I was reading the VK5 notes—Editor.) Hey, wait a minute, why was that street gate locked?

But down to earth again. Bob 7OM has been lying low lately due to part re-building of the rig and a voyage to the East Coast. I understand the modulator is being overhauled too, it seems Bob heard a tape recording of his phone transmission the other day and now wants to know why somebody didn't tell him.

Well the R.D. Contest is on us again and the rules appear in the July issue. What about it boys—start dusting and stoking and help us to win back the trophy by putting in a log with at least the minimum number of contacts, and if possible with a large number of contacts to help the Contest generally. Printed log sheets are available from the Secretary 7FJ.

Nick 7RY is gradually re-building the rig —going up to 10 watts too, I believe. Careful Nick, remember power is rationed, but I reckon your average of one hour every six weeks won't lower the level of the lake much. Associate Johnny Grace observed fiddling with a disposals v.h.f. rig recently, anticipating the Technician Licence, Johnny?

The Division has been invited to provide an exhibit at a proposed exhibition to be held at Hobart from 7th January to 16th January, 1954. The name of the exhibition is to be "Science Serving Man" and we propose to operate 7WI from the hall. This will mean a lot of hard work and organisation and volunteers will be needed soon to start the wheels turning.

Len 7LS, at Queenstown, still having difficulty in getting airborne, it seems the rig was all set to go when it was discovered that the only available rock was in the c.w. portion and no key jack in the rig! A v.f.o. is under construction. Seems there will be another mobile rig to menace Hobart traffic soon when Athol 7AJ makes up his mind whether to make it 40 mx or 2 mx. Shame on you Athol, whoever heard of a v.h.f. officer on 40 mx. Bill 7WG will be silent for some time owing to the shack being full of concrete blocks for the new house. The rumour re 7SK is just a rumour—he is still with us. Meeting nights are the first Wednesday in each month Max.

NORTHERN ZONE

The whereabouts of one of our active members in the v.h.f. field, 7PF, is now known; he is now busy at the Pondoe Airport, Devonport, keeping the airways communication and aids systems working. Bill 7AK, away out on Flinders Island in the Bass Strait, has purchased some v.h.f. equipment and will soon be on 144 Mc. and will be looking for contacts from the N.W. Coast and VK3. Leon 7JP, now at Quorba, Devonport, is likewise on the verge of doing great things on 144 Mc., but has not his main rig on yet since moving from Hobart.

Gordon 7GM has just about completed his re-building programme, his tx and Geloso v.f.o. are very f.b. Ray 7RK, our DX stayer, has braved the winter winds and still trying various antennae, the latest a W8JK is being used. We will have to watch the DX news for results. Len 7BQ, snowed under with "the end of the financial year" business, has managed to re-build his main tx. Rex 7RB has been heard testing. Chris 7XW is a busy man these days putting together the new 2 kw. b.c. tx for 7EX.

Ken 7LX not so active these days as he is busy studying for exams. Associate Geoff Crompton showed us the ins and outs of the railway communications system. We welcome this month Ken Bandfield as an Associate. Henry Salman now has trolley buses to add to his worries.

NORTH WESTERN ZONE

Our regular meeting was held on 3rd July with a fair attendance. Plans for the forthcoming R.D. Contest were discussed and also plans for the annual meeting of this zone.

7WA is about to start radiating energy from a 20 mx rotary beam, fine work Ellis, that should help the DX score. 7SF is in the process of building a new rig with many racks and panels; suppose he will be the next to build a rotary beam. 7KB has been having many rx troubles, but we might be able to straighten them all out before the R.D. Contest. A recent visit to 7AI was enjoyed by yours truly and proved very enlightening on the subjects of panadaptors and vented enclosures. I also noticed that he has gate switches on the panels to his rig, something which should be practiced more often by Radio Amateurs.

Have been receiving 7WI regularly on 80 mx, although one Sunday received it on 40 mx for the first time in months which shows that 40 mx is coming good again.

— • • • —

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

TECHNICIAN LICENCE

12 Innes St., Launceston, Tas.

Editor A.R.," Dear Sir,

I, for one, would like to voice my protest against the statement of VK2RH, made in his letter published in July issue of "A.R.," which he quotes "one who cannot master the Morse Code is sadly lacking in both ability and the will to learn." Also for the derogative remark that one individual offered him a fee to sit for the A.O.C.P. examination. This latter statement, in my opinion, is a slur on the Amateurs of the past and the present, and also throws a reflection on the Associate Members of the W.I.A., particularly the younger generation, who are trying to become fully-fledged by gaining their tickets, and should have never been voiced in the letter at all, but placed in F.E's. capable hands, who, I think, would have made full use of it and acted promptly in the right quarters. Therefore, I see that it has no bearing on the technicians' licence question whatsoever. From my own observations, I find the Amateurs I have heard on the air and have personally come in contact with all live up to the standard of the Amateur Code published in your editorial of the July issue.

It is all very well for VK2RH, with his A.I.R.E. and F.B.I.S. letters behind his name, to criticise that all technicians should be qualified in receiving Morse Code, but in most cases these fellows have had to put in years of very hard and solid study to get where they are today. Therefore the W.I.A. has made a very wise step in this direction in encouraging these technicians to further their studies and interest in the v.h.f. and u.h.f. bands which would be beneficial to Amateurs and trade channels as well.

Take my own case. I have been interested in radio since 1920, and the first voice and station I heard in that year was 2CM at Vaucluse, Sydney, and from that night I have followed the advance of radio for 33 years. Unfortunately, I have not always been able to give it my full time over these years and it is only recently since my family has grown up and I no longer have to do shift work, that I have been able to do more to my past hobby. I am now 55 years and still a keen hobbiest, but I find that it is very solid going to endeavour to attain 14 words a minute, for I find that most code stations are automatic or use the "bug" key which can send up to 35 or 40 words per minute. I also find that there are very few Amateurs who transmit slow enough for the beginner to receive, yet if it was not for this fact that I had to pass the 14 word test, I would not have much trouble in passing the P.M.G's. theory test. Then again comes the same question, "What is the use of unending study of this subject, when you know that you cannot get through in the other?" I feel that F.E. has taken a step in the right direction, and hope they can see their way, in agreement with the P.M.G's. Department, to let Associate Members of the W.I.A. who have the necessary qualifications and ability to pass a suitable theory paper take part in the experiments now taking place on these frequencies.

I heartily endorse VK7OM, VK2RK, and VK3YV for their remarks in their letters, but was surprised with Mr. Trebilcock's letter.

—HENRY F. SOLOMON,
Associate W.I.A. VK7.

HAMADS

9d. per line, minimum 2/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

BORROW.—Circuit diagram of No. 19 Mk. II. and Power Supply. Wish to copy and return. A. W. Kelly, Berri, S.A.

TO CLEAR: 829B and socket £4, SCR522 Tx Section complete except 832s £3, Crystals FT243 various freqs. 2.9-9 Mc. 10/-, 832 shielded sockets built-in by-passes 10/-, Eddystone 50 + 50, Cyldon 15 + 15 tuning condensers 25/-, 6 mx Converter 6AK5 r.f., 6AG5 mixer, 9002 osc., VR105, Eddystone dial £4. F. K. McTaggart, 5 The Grove, Sth. Camberwell, Vic. Phone: WM 2386.

WANTED.—Automatic Code Sender with tapes, will buy or exchange for 6v. Car Radio in good order. R. D. Smith, 30 Moree St., Gordon, N.S.W.

WANTED.—Hallicrafters S27 or S36 Receiver in good condition. Particulars to Kev. Langsdorf, Nobby, Qld.

WANTED to purchase or obtain on loan, Handbook BC348 Receiver. Any model. Clark, 841 George St., Sydney.

Homecrafts PTY. LTD.

★ RADIO ★ BARGAINS

BARGAIN CRYSTAL MICROPHONE

Again available, English D104 High Fidelity Crystal Microphones. As illustrated. Only—

£5/19/6

Q Plus OSCILLATOR

With Modulated 455 Kc. Note. Accurate I.F. alignment.

Price only 75/-

(Plus 12½% Sales Tax)

BARGAIN CAR RADIO KIT

★ KARSET KIT

Car Radio Kit, as described in "Radio and Hobbies," March, 1952, issue. Karset complete to the last nut and bolt, including 6 inch Rola Speaker and Box.

Price including sales tax—

22 GNS.

COUNTRY & INTERSTATE CLIENTS PLEASE ADD FREIGHT OR POSTAGE

BARGAIN KEROSENE STOVES

Latest type. No pressure required —absolutely safe. Boils kettle of water in twelve minutes.

Price only—

£3/19/6

RADIOGRAM CABINETS

Beautiful piano finish cabinet with deep well for record changer. Has waterfall front and lift-up lid.

As illustrated

16 GNS.

Plus 15/- packing charge.

RECORDING ENTHUSIASTS

Trutrak Cutting Head, 20/-

NEW TAPE DECK

★ Weight 7½ lb.
★ High fidelity 50 to 9,000 c.p.s.
★ One hour playing for each spool.
★ Self-contained motor.
★ Electronic erase head fitted.
★ Built-in vernier control.
★ Fast forward and rewind.

Price complete £40

Plus 12½% Sales Tax.

CONVERT YOUR EXISTING 78 R.P.M. RECORD PLAYER TO "MICROGROOVE"

Easy to install. Pick-up has interchangeable Heads. Cantilever type Sapphire Stylus. Excellent frequency response. Even speed reduction.

Price as illustrated £6/19/6

"NEW"

B.S.R. 3 speed Changer, 33⅓, 45, 78 r.p.m. Plays 7", 10" and 12" mixed Records. High fidelity crystal turnover head for standard or microgroove records. Freight free.

Complete, as illustrated, £26

Terms: £6 dep., 9/- weekly in Vic. only

STOP PRESS BARGAINS

★ 12 volt 500 watt Generators. Suitable for home lighting. Cut to only **£4/19/6**
★ 6K7G Valve, direct replacement for 6U7G **7/11**
★ Acorn Tubes, brand new, type 954 and 955. Cut to only **7/11**
★ Type 7C7 Valves, brand new **7/6**
★ 5" Speaker Boxes, only **9/11**
★ Bradley 10,000 ohm Midget Potentiometer **1/6**
★ 30 Henry 100 Ma. Power Chokes. Only **12/11**
★ 12 volt Vibrators **6/11**
★ Type 913 1" Cathode Ray Tube, **39/6**
★ 10,000-30,000, 47,000 and 100,000 ohms 3 watts Carbon Resistors, **1/3** each or **12/6** dozen.
★ 15,000 ohms 2 watts Carbon Resistors, **9d.** each, or **7/6** dozen.
★ 250,000 ohms, 20 watts Wire Wound Resistors, **2/-** each.
★ Bakelite Mantel Radio Cabinets, **9/11**
★ 0-20 volt Moving Coil Meters, **14/11**
★ Brand new 8 uF. 525 volts Electrolytic Condensers **2/6**
★ Bargain imported Record Player. English 3-speed Player, 33⅓, 45 and 78 r.p.m. with high fidelity crystal pick-up for microgroove or standard recordings. Cut to only **£10/19/6**
★ Half Megohm Potentiometers with D.P. Switch **6/11**
★ Mica Condenser Bargains: 0.0001, 0.00015, 0.0003, 0.0004, 0.0005 uF., **3/9** doz. 0.001, 0.002, 0.003, 0.004, 0.005, 0.006, 0.008 uF., **6/-** doz. 0.01 uF. Mica Condensers, **1/3** each.

290 LONSDALE STREET, MELBOURNE **Central 4311**

LARGEST RANGE IN THE WORLD

English-Made BULGIN Switches

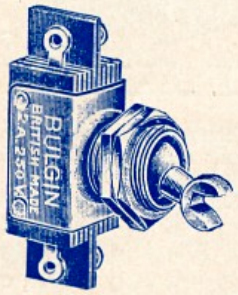
Bulgin offers the largest range of miniature switches in the world, with over 160 basic types, covering every possible application. Known throughout the world as "The Choice of Critics," Bulgin switches are tested to 25,000 operations.

Laminated and metal clad for strength and reliability, they incorporate only the finest grade materials.

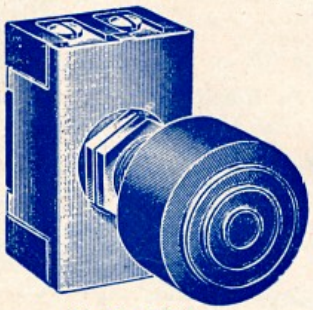
Many Bulgin switches are made under licence to "ACRO" of the U.S.A.

The wide range includes:—

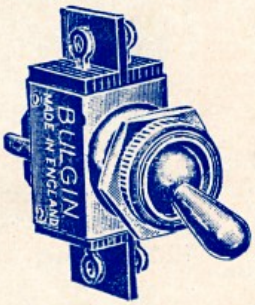
Key switches, e.g. S327.
Press action switches, e.g. S365. **Rotary selector switches, e.g. S207.**
Semi rotary snap action switches, e.g. S254. **Long earth path switches, e.g. S263.**
Low voltage-low resistance switches, e.g. S104.
S.P. and D.P. snap action switches, e.g. S259.
S.P. and D.P. Pear dolly switches, e.g. S270/PD.
S.P. and D.P. Slotted dolly switches, e.g. S265/SD.
Push-pull and foot operated switches, e.g. S446 and S360.
Heavy duty appliance switches, e.g. S53. **Micro switches, e.g. S500.**
Small "push-for-on" and miniature rotary switches, e.g. MP.1-3, S450.



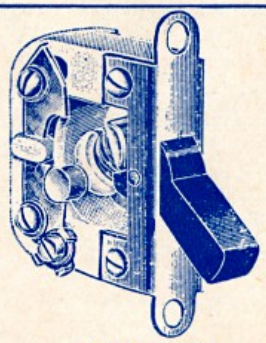
List No. S.265/S.D.



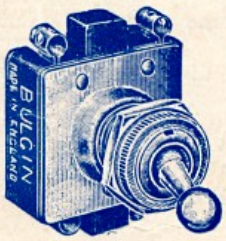
List No. S.360



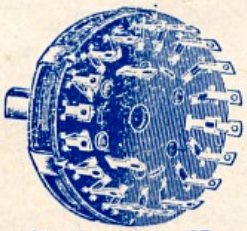
List No. S.270/P.D.



List No. S.53

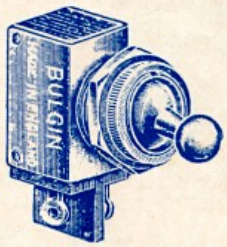


List No. S.104 –



List Nos. S.207, 437,

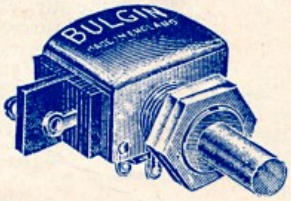
List No. S.263



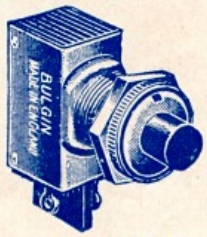
List No. S.259

List Nos. S.500–502

List No. S.324



List No. S.254



List Nos. S.365, 366

AVAILABLE THROUGH ALL LEADING DISTRIBUTORS.

TRADE ENQUIRIES TO—

List No. S.450

List No. S.446

List Nos. M.P.1–3

BULGIN
"The Choice of Critics"

Sole Australian Factory Representatives

R.H.CUNNINGHAM PTY. LTD.

118 WATTLETREE ROAD, ARMADALE, S.E.3. CABLE "CUNNIG" MELBOURNE — TELEPHONE UY6274

3 CAMBRIDGE ROAD, DRUMMOYNE, N.S.W. Phone: WA 1615